IEI Technology Corp.

MODEL:

IBX-700 Series

Intel® Celeron® M Integrated Service Computer with 80 GB HDD, DVD Combo, 1 GB DDR2, GbE LAN, PoweredUSB, 5V/12V RS-232, Cash Drawer Connectors

User Manual

Rev. 1.01 March 2008

RoHS Lead Free

Revision

Date	Version	Changes
2008-03	1.01	Modified the ODD replacement procedures
2008-02	1.00	Initial Release

Copyright

COPYRIGHT NOTICE

The information in this document is subject to change without prior notice in order to improve reliability, design and function and does not represent a commitment on the part of the manufacturer.

In no event will the manufacturer be liable for direct, indirect, special, incidental, or consequential damages arising out of the use or inability to use the product or documentation, even if advised of the possibility of such damages.

This document contains proprietary information protected by copyright. All rights are reserved. No part of this manual may be reproduced by any mechanical, electronic, or other means in any form without prior written permission of the manufacturer.

TRADEMARKS

All registered trademarks and product names mentioned herein are used for identification purposes only and may be trademarks and/or registered trademarks of their respective owners.

Manual Conventions

WARNING!

Warnings appear where overlooked details may cause damage to the equipment or result in personal injury. Warnings should be taken seriously. Warnings are easy to recognize. The word “warning” is written as “**WARNING**,” both capitalized and bold and is followed by text. The text is the warning message. A warning message is shown below:

WARNING:

This is an example of a warning message. Failure to adhere to warning messages may result in permanent damage to the IBX-700 Series or personal injury to the user. Please take warning messages seriously.

CAUTION!

Cautionary messages should also be heeded to help reduce the chance of losing data or damaging the IBX-700 Series. Cautions are easy to recognize. The word “caution” is written as “**CAUTION**,” both capitalized and bold and is followed. The italicized text is the cautionary message. A caution message is shown below:

CAUTION:

This is an example of a caution message. Failure to adhere to cautions messages may result in permanent damage to the IBX-700 Series. Please take caution messages seriously.

NOTE:

These messages inform the reader of essential but non-critical information. These messages should be read carefully as any directions or instructions contained therein can help avoid making mistakes. Notes are easy to recognize. The word “note” is written as “**NOTE**,” both capitalized and bold and is followed by text. The text is the cautionary message. A note message is shown below:

NOTE:

This is an example of a note message. Notes should always be read. Notes contain critical information about the IBX-700 Series. Please take note messages seriously.

Packing List

NOTE:

If any of the components listed in the checklist below are missing, please do not proceed with the installation. Contact the IEI reseller or vendor you purchased the IBX-700 Series from or contact an IEI sales representative directly. To contact an IEI sales representative, please send an email to sales@iei.com.tw.

The items listed below should all be included in the IBX-700 Series package.

- 1 x IBX-700 Series Integrated Service Computer
- 1 x Power adaptor
- 1 x Power cord
- 1 x Screw set
- 1 x DVD-ROM SATA cable
- 4 x Foot pads
- 1 x Utility CD
- 1 x 1 GB CompactFlash® card with Windows WEPOS pre-installed (optional)
- 1 x 1 GB CompactFlash® card with Windows XPE pre-installed (optional)
- 1 x Riser card (optional)

Images of the above items are shown in **Chapter 4**.

Table of Contents

1 INTRODUCTION 1

1.1 IBX-700 SERIES OVERVIEW 2

1.1.1 IBX-700 Series Benefits 2

1.1.2 IBX-700 Series Features 3

1.2 IBX-700 SERIES MODEL VARIATIONS 3

1.3 TECHNICAL SPECIFICATIONS 6

1.4 POWER MODULE SPECIFICATIONS 7

1.4.1 Power Module Options 7

1.4.2 Power Module Specifications 7

1.5 POWER ADAPTER 9

1.6 WIRELESS LAN MODULE (OPTIONAL) 11

2 MECHANICAL DESCRIPTION 13

2.1 IBX-700 SERIES MECHANICAL OVERVIEW 14

2.2 IBX-700 SERIES PHYSICAL DIMENSIONS 14

2.3 EXTERNAL OVERVIEW 15

2.3.1 Front Panel 15

2.3.2 Rear Panel Overview 16

2.3.2.1 Rear Panel Connectors and Indicators 17

2.4 INTERNAL OVERVIEW 18

3 SYSTEM COMPONENTS 19

3.1 IBX-700 SERIES MOTHERBOARD 20

3.1.1 POS Motherboard Overview 20

3.1.2 CPU Support 21

3.1.2.1 Intel® Celeron® M Specifications 22

3.1.3 Onboard Chipsets 22

3.1.3.1 Northbridge and Southbridge Chipsets 22

3.1.3.2 Intel® 910GMLE Northbridge Chipset 23

3.1.3.3 Intel® 915GM Northbridge Chipset 23

3.1.3.4 ICH6-M Southbridge Chipset 23
3.1.4 Intel® 915GM Integrated Graphics Media Accelerator 900 24
3.1.5 Ethernet Controller Specifications 25
3.1.5.1 Overview 25
3.1.5.2 PCI Express GbE Features 25
3.2 PERIPHERAL INTERFACE CONNECTORS 26
3.2.1 Peripheral Interface Connectors 26
3.2.2 External Interface Panel Connectors 27
3.3 ON-BOARD JUMPERS 28
3.3.1 ATX Power Select Jumper Settings 28
3.3.2 FSB Select Jumper Settings 29
3.3.3 Clear CMOS Jumper 30
3.3.4 COM 1/2 Pin 9 Setting Jumper 32
3.3.5 COM 3/4 Pin 9 Setting Jumper 33

4 INSTALLATION 35

4.1 ANTI-STATIC PRECAUTIONS 36
4.2 INSTALLATION PROCEDURE 36
4.2.1 Installation Procedure Overview 36
4.2.2 Unpacking 37
4.2.3 CompactFlash® Card Installation 38
4.2.4 Foot Pad Installation 39
4.2.5 Cable Connections 39
4.3 POWER-ON PROCEDURE 39
4.3.1 Installation Checklist 39
4.3.2 Power-on Procedure 40

5 AMI BIOS 41

5.1 INTRODUCTION 42
5.1.1 Starting Setup 42
5.1.2 Using Setup 42
5.1.3 Getting Help 43
5.1.4 Unable to Reboot After Configuration Changes 43
5.1.5 BIOS Menu Bar 43
5.2 MAIN 44

5.3 ADVANCED 45
5.3.1 CPU Configuration *46*
5.3.2 IDE Configuration *47*
5.3.2.1 IDE Master, IDE Slave 49
5.3.3 Super IO Configuration *54*
5.3.4 Hardware Health Configuration *59*
5.3.5 Remote Access Configuration *61*
5.3.6 USB Configuration *63*
5.3.6.1 USB Mass Storage Device Configuration 65
5.4 PCI/PNP 68
5.5 BOOT 70
5.5.1 Boot Settings Configuration *71*
5.5.2 Boot Device Priority *74*
5.5.3 Hard Disk Drives *74*
5.6 SECURITY 74
5.7 CHIPSET 76
5.7.1 NorthBridge Configuration *77*
5.7.2 Southbridge Configuration *78*
5.8 POWER 80
5.9 EXIT 83

6 DRIVER INSTALLATION 85

6.1 AVAILABLE SOFTWARE DRIVERS 86
6.2 DRIVER CD 86
6.3 REALTEK AC`97 AUDIO DRIVER INSTALLATION 87
6.3.1 BIOS Setup *87*
6.3.2 Driver Installation *87*
6.4 INTEL® GRAPHICS MEDIA ACCELERATOR DRIVER INSTALLATION 90
6.5 BROADCOM LAN DRIVER (FOR GBE LAN) INSTALLATION 94
6.6 ATHEROS WIRELESS LAN DRIVER INSTALLATION 98

7 SOFTWARE APPLICATION (ISMM) 105

7.1 ISMM INTRODUCTION 106
7.2 ISMM INSTALLATION 106
7.3 VOLTAGE PAGE 108

7.3.1 Refresh Time Setting *109*
7.3.2 High Limit Value and Low Limit Value Setting *109*
7.4 FAN PAGE 110
7.4.1 Refresh Time Setting *111*
7.4.2 High Limit Value and Low Limit Value Setting *111*
7.4.3 Smart Fan Setting *112*
7.4.3.1 On/Off Mode 112
7.4.3.2 PWM Mode 112
7.4.3.3 Automatic Mode 113
7.5 TEMPERATURE PAGE 114
7.5.1 Refresh Time Setting *115*
7.5.2 High Limit Value and Low Limit Value Setting *116*
7.6 CASH DRAWER PAGE 117
7.7 WATCHDOG TIMER PAGE 118
7.8 DIO PAGE 119
7.8.1 GPO Information Setting *119*
7.9 LOAD/SAVE PAGE 120

8 TROUBLESHOOTING AND MAINTENANCE 121

8.1 IBX-700 SERIES SYSTEM MAINTENANCE OVERVIEW 122
8.2 SYSTEM TROUBLESHOOTING 122
8.2.1 The System Doesn't Turn On *122*
8.2.2 The System Doesn't Boot Up *123*
8.3 JUMPER SETTING AND EXPANSION CARD INSTALLATION 124
8.3.1 Cover Case Removal *124*
8.3.2 Configure the Jumper Settings *124*
8.3.3 Expansion Card Installation (Optional) *125*
8.4 COMPONENT REPLACEMENT PROCEDURE 126
8.4.1 HDD Replacement *127*
8.4.1.1 HDD Removal 127
8.4.1.2 HDD Installation 128
8.4.2 Motherboard Replacement *129*
8.4.2.1 Motherboard Removal 129
8.4.2.2 Motherboard Installation 131
8.4.3 Power Module Replacement *132*

8.4.3.1 Power Module Removal 132
8.4.3.2 Power Module Installation 134
8.4.4 DIMM Replacement 134
8.4.5 ODD Replacement (Optional) 135
8.4.5.1 ODD Removal 135
8.4.5.2 ODD Installation 137
8.4.6 Riser Card Replacement (Optional) 137

A SAFETY PRECAUTIONS 139

A.1 SAFETY PRECAUTIONS 140
A.1.1 General Safety Precautions 140
A.1.2 Anti-static Precautions 141
A.2 MAINTENANCE AND CLEANING PRECAUTIONS 141
A.2.1 Maintenance and Cleaning 141
A.2.2 Cleaning Tools 142

B INTERFACE CONNECTORS 143

B.1 PERIPHERAL INTERFACE CONNECTORS 144

C BIOS MENU OPTIONS 151

C.1 BIOS CONFIGURATION OPTIONS 152

D WATCHDOG TIMER 155

E ADDRESS MAPPING 159

E.1 IO ADDRESS MAP 160
E.2 1ST MB MEMORY ADDRESS MAP 161
E.3 IRQ MAPPING TABLE 161
E.4 DMA CHANNEL ASSIGNMENTS 161

F HAZARDOUS MATERIALS DISCLOSURE 163

F.1 HAZARDOUS MATERIAL DISCLOSURE TABLE FOR IPB PRODUCTS CERTIFIED AS ROHS COMPLIANT UNDER 2002/95/EC WITHOUT MERCURY 164

G JMICRO RAID 167

G.1 INTRODUCTION 168
G.1.1 Precautions 168

G.2 Features and Benefits 169
G.3 Accessing the JMicron RAID Utility 169
G.4 Creating a RAID Array 172
G.5 Deleting a RAID Array 179
G.6 Revert a Hard Drive to Non-RAID 182
G.7 Solve Mirror Conflict 185
G.8 Rebuild Mirror Drive 187
G.9 Save and Exit Setup 190
G.10 Exit Without Saving 192
G.11 RAID Options 194
G.11.1 RAID 0 Striping – For Performance 194
G.11.2 RAID 1 Mirror – For Redundancy 194
G.11.3 JBOD 195

9 INDEX 197

List of Figures

Figure 1-1: IBX-700 Series Integrated Service Computer 2
Figure 1-2: Power Adapter 9
Figure 2-1: IBX-700 Series Dimensions (mm) 15
Figure 2-2: IBX-700 Series Front Panel 16
Figure 2-3: IBX-700 Series Rear Panel 16
Figure 2-4: Internal Overview 18
Figure 3-1: POS-9103/POS-9153 Jumper and Connector Locations 21
Figure 3-2: Jumpers 28
Figure 3-3: ATX Power Select Jumper Location 29
Figure 3-4: FSB Select Jumper Location 30
Figure 3-5: Clear CMOS Jumper 32
Figure 3-6: COM 1/2 Pin 9 Setting Jumper Location 33
Figure 3-7: COM 3/4 Pin 9 Setting Jumper Location 34
Figure 4-1: CF Card Slot Cover Retention Screw 38
Figure 4-2: Power Button and Power LED 40
Figure 6-1: Available Drivers 86
Figure 6-2: Locate the Setup Program Icon 87
Figure 6-3: Preparing Setup Screen 88
Figure 6-4: InstallShield Wizard Welcome Screen 88
Figure 6-5: Audio Driver Software Configuration 89
Figure 6-6: Audio Driver Digital Signal 89
Figure 6-7: Audio Driver Installation 90
Figure 6-8: Restart the Computer 90
Figure 6-9: VGA Driver 91
Figure 6-10: Intel® Graphics Media Accelerator InstallShield Wizard 91
Figure 6-11: InstallShield Wizard Extracting Files 92
Figure 6-12: Intel® Graphics Media Accelerator Driver Welcome Screen 92
Figure 6-13: Intel® Graphics Media Accelerator Driver License Agreement 93

Figure 6-14: Intel® Graphics Media Accelerator Driver Installing Notice.....93
Figure 6-15: Intel® Graphics Media Accelerator Installation Complete 94
Figure 6-16: Windows Control Panel.....95
Figure 6-17: System Icon.....95
Figure 6-18: Device Manager Tab.....96
Figure 6-19: Device Manager List.....96
Figure 6-20: Search for Suitable Driver.....97
Figure 6-21: Locate Driver Files.....97
Figure 6-22: Location Browsing Window.....98
Figure 6-23: Atheros Client Installation Program Screen 99
Figure 6-24: Atheros Wireless LAN Driver License Agreement.....99
Figure 6-25: Wireless LAN Driver Setup Type..... 100
Figure 6-26: Driver Destination Location..... 100
Figure 6-27: Wireless LAN Driver Important Notice 101
Figure 6-28: Wireless LAN Configuration Tool Selection 101
Figure 6-29: Single Sign On Feature Selection 102
Figure 6-30: Wireless LAN Driver Installation 102
Figure 6-31: Wireless LAN Driver Install Wizard Completed 103
Figure 7-1: iSMM Installation Welcome Screen 106
Figure 7-2: iSMM Installation Customer Information..... 107
Figure 7-3: Ready to Install the Program Window 107
Figure 7-4: Voltage Page 108
Figure 7-5: Voltage Refresh Time Setting..... 109
Figure 7-6: Voltage Page – High Limit and Low Limit 109
Figure 7-7: Fan Page..... 110
Figure 7-8: Fan Speed Refresh Time Setting 111
Figure 7-9: Fan Page – High Limit and Low Limit..... 111
Figure 7-10: Smart Fan Setting – On/Off Mode 112
Figure 7-11: Smart Fan Setting – PWM Mode..... 113
Figure 7-12: Smart Fan Setting – Automatic Mode..... 114
Figure 7-13: Temperature Page 115
Figure 7-14: Temperature Refresh Time Setting..... 115

Figure 7-15: Temperature Page – High Limit and Low Limit 116
Figure 7-16: Cash Drawer Page 117
Figure 7-17: WDT Page 118
Figure 7-18: DIO Page 119
Figure 7-19: Load/Save Page 120
Figure 8-1: Cover Case Thumb Screws 124
Figure 8-2: Cover Case Removal 124
Figure 8-3: Expansion Slot Cover Retention Screws 125
Figure 8-4: Installed Expansion Card 126
Figure 8-5: HDD Bracket Retention Screws 127
Figure 8-6: HDD Connectors 128
Figure 8-7: HDD Retention Screws 128
Figure 8-8: Rear Panel Connector Retention Screws 130
Figure 8-9: Motherboard Connectors 130
Figure 8-10: Motherboard Retention Screws 131
Figure 8-11: Power Module Internal Connectors 133
Figure 8-12: Power Module Retention Screws 133
Figure 8-13: DIMM Installation 135
Figure 8-14: ODD Bracket Retention Screws 136
Figure 8-15: ODD SATA Cable Retention Screws 136
Figure 8-16: ODD Retention Screws 137
Figure 8-17: Riser Card Retention Screws 138
Figure 8-18: Riser Card Location 138

List of Tables

Table 1-1: Model Variations....5
Table 1-2: CF Card with Preinstalled OS....5
Table 1-3: Technical Specifications....7
Table 1-4: IBX-700 Series Power Module Options....7
Table 1-5: DC-to-DC Power Module Specifications....8
Table 1-6: Power Adapter Specifications....10
Table 1-7: Wireless Module Specifications....11
Table 3-1: Chipset Variations....22
Table 3-2: Peripheral Interface Connectors....27
Table 3-3: Rear Panel Connectors....27
Table 3-4: Jumpers....28
Table 3-5: ATX Power Select Jumper Settings....29
Table 3-6: FSB Select Jumper Settings....30
Table 3-7: Clear CMOS Jumper Settings....31
Table 3-8: COM 1/2 Pin 9 Setting Jumper Settings....32
Table 3-9: COM 3/4 Pin 9 Setting Jumper Settings....34
Table 4-1: Package List Contents....38
Table 5-1: BIOS Navigation Keys....43

List of BIOS Menus

Menu 1: Main 44
Menu 2: Advanced 46
Menu 3: CPU Configuration 47
Menu 4: IDE Configuration 48
Menu 5: IDE Master and IDE Slave Configuration 50
Menu 6: Super IO Configuration 54
Menu 7: Hardware Health Configuration 59
Menu 8: Remote Access Configuration [Advanced] 61
Menu 9: USB Configuration 64
Menu 10: USB Mass Storage Device Configuration 66
Menu 11: PCI/PnP Configuration 68
Menu 12: Boot 71
Menu 13: Boot Settings Configuration 72
Menu 14: Security 75
Menu 15: Chipset 76
Menu 16:Northbridge Chipset Configuration 77
Menu 17:Southbridge Chipset Configuration 79
Menu 18:Power 80
Menu 19:Exit 83

THIS PAGE IS INTENTIONALLY LEFT BLANK

Chapter

1

Introduction

1.1 IBX-700 Series Overview

Figure 1-1: IBX-700 Series Integrated Service Computer

The IBX-700 Series is an Intel® Celeron® M based integrated service solution that can be applied in diverse operational environments and implemented in multi-faceted point-of-sale (POS) applications. The IBX-700 Series comes fully kitted with a high-performance motherboard and a host of other peripheral interface connectors. The integrated GbE LAN ensures an uninterrupted network connection. The preinstalled 80GB HDD and 1 GB DDR2 SDRAM make the IBX-700 a ready-to-use system. The flexible PCI/PCIe expansion allows the IBX-700 series to meet multiple application requirements. The IBX-700 Series is designed for ease of use and easy installation.

1.1.1 IBX-700 Series Benefits

The IBX-700 Series has the following benefits:

- Easy installation and maintenance
- Complete integration saves solution development time and cost
- A full range of I/O interfaces compatible with most POS external devices
- Quick access CF storage card interface
- Powerful preinstalled Intel® Celeron® M CPU and motherboard ensures rigorous processing needs can be met

1.1.2 IBX-700 Series Features

The IBX-700 Series has the following features

- RoHS compliant design
- Intel® Celeron® M CPU preinstalled
- 1 GB DDR2 SDRAM DIMM preinstalled
- One GbE RJ-45 connector supported
- One CompactFlash® Type I or Type II card supported
- Serial port 5 V or 12 V LED indicators on the rear panel
- SATA RAID 0, 1 support
- Optional 802.11b/g wireless LAN module
- Support 9 V ~ 36 V power (optional)

1.2 IBX-700 Series Model Variations

The IBX-700 Series has one preinstalled 1 GB DDR2 memory module with different type CPU. The model information is listed in **Table 1-1** below.

IBX-700D-9103-R10	CPU	DVD	Wireless	Expansion	Power
-WBOOC/CM373/1GB/80G	1.0 GHz ULV Intel® Celeron® M with 512 KB L2 cache (BGA)	Yes	No	N/A	12 V DC
-WBIGC/CM373/1GB/80G	1.0 GHz ULV Intel® Celeron® M with 512 KB L2 cache (BGA)	Yes	Yes	PCI	12 V DC
-WBEGC/CM373/1GB/80G	1.0 GHz ULV Intel® Celeron® M with 512 KB L2 cache (BGA)	Yes	Yes	PCIe x1	12 V DC
-WBOOO/CM373/1GB/80G	1.0 GHz ULV Intel® Celeron® M with 512 KB L2 cache (BGA)	No	No	N/A	12 V DC
-WBIGO/CM373/1GB/80G	1.0 GHz ULV Intel® Celeron® M with 512 KB L2 cache (BGA)	No	Yes	PCI	12 V DC
-WBEGO/CM373/1GB/80G	1.0 GHz ULV Intel® Celeron® M with 512 KB L2 cache (BGA)	No	Yes	PCIe x1	12 V DC

IBX-700D-9153-R10	CPU	DVD	Wireless	Expansion	Power
-WSOOC/CM370/1GB/80G	1.5 GHz Intel® Celeron® M with 1 MB L2 cache (PGA)	Yes	No	N/A	12 V DC
-WSIGC/CM370/1GB/80G	1.5 GHz Intel® Celeron® M with 1 MB L2 cache (PGA)	Yes	Yes	PCI	12 V DC
-WSEGC/CM370/1GB/80G	1.5 GHz Intel® Celeron® M with 1 MB L2 cache (PGA)	Yes	Yes	PCIe x1	12 V DC
-WSOOO/CM370/1GB/80G	1.5 GHz Intel® Celeron® M with 1 MB L2 cache (PGA)	No	No	N/A	12 V DC
-WSIGO/CM370/1GB/80G	1.5 GHz Intel® Celeron® M with 1 MB L2 cache (PGA)	No	Yes	PCI	12 V DC
-WSEGO/CM370/1GB/80G	1.5 GHz Intel® Celeron® M with 1 MB L2 cache (PGA)	No	Yes	PCIe x1	12 V DC
IBX-700M-9103-R10	**CPU**	**DVD**	**Wireless**	**Expansion**	**Power**
-WBOOC/CM373/1GB/80G	1.0 GHz ULV Intel® Celeron® M with 512 KB L2 cache (BGA)	Yes	No	N/A	9~36 V DC
-WBIGC/CM373/1GB/80G	1.0 GHz ULV Intel® Celeron® M with 512 KB L2 cache (BGA)	Yes	Yes	PCI	9~36 V DC
-WBEGC/CM373/1GB/80G	1.0 GHz ULV Intel® Celeron® M with 512 KB L2 cache (BGA)	Yes	Yes	PCIe x1	9~36 V DC
-WBOOO/CM373/1GB/80G	1.0 GHz ULV Intel® Celeron® M with 512 KB L2 cache (BGA)	No	No	N/A	9~36 V DC
-WBIGO/CM373/1GB/80G	1.0 GHz ULV Intel® Celeron® M with 512 KB L2 cache (BGA)	No	Yes	PCI	9~36 V DC
-WBEGO/CM373/1GB/80G	1.0 GHz ULV Intel® Celeron® M with 512 KB L2 cache (BGA)	No	Yes	PCIe x1	9~36 V DC
IBX-700M-9153-R10	**CPU**	**DVD**	**Wireless**	**Expansion**	**Power**
-WSOOC/CM370/1GB/80G	1.5 GHz Intel® Celeron® M with 1 MB L2 cache (PGA)	Yes	No	N/A	9~36 V DC
-WSIGC/CM370/1GB/80G	1.5 GHz Intel® Celeron® M with 1 MB L2 cache (PGA)	Yes	Yes	PCI	9~36 V DC
-WSEGC/CM370/1GB/80G	1.5 GHz Intel® Celeron® M with 1 MB L2 cache (PGA)	Yes	Yes	PCIe x1	9~36 V DC

-WSOOO/CM370/1GB/80G	1.5 GHz Intel® Celeron® M with 1 MB L2 cache (PGA)	No	No	N/A	9~36 V DC
-WSIGO/CM370/1GB/80G	1.5 GHz Intel® Celeron® M with 1 MB L2 cache (PGA)	No	Yes	PCI	9~36 V DC
-WSEGO/CM370/1GB/80G	1.5 GHz Intel® Celeron® M with 1 MB L2 cache (PGA)	No	Yes	PCIe x1	9~36 V DC

Table 1-1: Model Variations

Optional 1 GB CF card pre-installed with Windows® WEPOS or Windows® XP Embedded is also provided by IEI for the IBX-700 Series. The information of the optional CF card is listed below.

S/N	Model	OS Image	Capacity
IBXCF-P9103-WEPOS	IBX-700-9103	Windows® WEPOS	1 GB
IBXCF-P9103-XPE	IBX-700-9103	Windows® XP Embedded	1 GB
IBXCF-P9153-WEPOS	IBX-700-9153	Windows® WEPOS	1 GB
IBXCF-P9153-XPE	IBX-700-9153	Windows® XP Embedded	1 GB

Table 1-2: CF Card with Preinstalled OS

1.3 Technical Specifications

The specifications for the Intel® based IBX-700 are listed below.

	IBX-700-9103	IBX-700-9153
CPU	1 GHz ULV Intel® Celeron M 512 KB L2 Cache (BGA type)	1.5 GHz Intel® Celeron M 1 MB L2 Cache (PGA type)
System Chipset	Northbridge: Intel® 910GMLE Southbridge: ICH6-M	Northbridge: Intel® 915GM Southbridge: ICH6-M
System Memory	One 240-pin 1 GB 400/533 MHz DDR2 SDRAM DIMM preinstalled (Two 240-pin DDR2 DIMM sockets support up to 2 GB)	
Ethernet	One RJ-45 for GbE	
Display	One VGA integrated in Intel® 910GMLE	One VGA integrated in Intel® 915GM
USB	Five USB 2.0 supported ▪ 4 x Standard USB 2.0 ports (two on the front, two on the rear) ▪ 1 x PoweredUSB port provides 12 V output	
Serial Port	Six RS-232 serial ports ▪ 4 x RS-232 ports provide 5 V or 12 V power output via Pin 9 (indicated by LEDs on the rear panel) ▪ 2 x RS-232 ports	
Parallel Port	One DB-25 parallel port	
Digital I/O	Two RJ-12 connectors for cash drawer	
Audio	1 x Line-out 1 x Mic-in	
Keyboard/Mouse	1 x PS/2 Keyboard connector 1 x PS/2 Mouse connector	
ODD	One optional DVD combo drive (supports CD-R/CD-RW/DVD-R)	
HDD	One preinstalled 2.5” 80 GB HDD (the system supports two 2.5” HDD drive bays)	
SSD	One CompactFlash® Type II slot	

Expansion Slot	One PCI slot and one PCIe x4 slot support an optional PCI/PCIe riser card including: ▪ One PCIe mini slot (preinstalled with a wireless LAN module) ▪ One PCI slot (or one PCIe x1)
Power Supply	External power adapter, input voltage: 90 V AC ~ 264 V AC @ 47 Hz ~ 63 Hz, 84 W
Operating Temperature	0ºC ~ 45ºC
Net Weight	3.6 kg
Dimensions (W x D x H)	300 mm x 309 mm x 75 mm
EMC/Safety	CE, FCC class B, UL, CCC

Table 1-3: Technical Specifications

1.4 Power Module Specifications

1.4.1 Power Module Options

The IBX-700 Series supports either a 12 V DC input or a 9 V ~ 36 V DC input. The input support depends on the power module installed in the system. The two power modules are listed in **Table 1-4**:

IBX-700 Series	Power Module	DC Input
IBX-700D	IDD-12490A	12V DC input
IBX-700M	IDD-9364120A	9V~36V DC input

Table 1-4: IBX-700 Series Power Module Options

1.4.2 Power Module Specifications

The specifications for the IDD-12490A and IDD-9364120A are shown in **Table 1-5**.

Model Name:	IDD-12490A	IDD-9364120A
Input	12 V DC	9 V DC~36 V DC
Output:		
12 V	10 A (pass thru.)	4 A (Max.)
5 V	10 A (Max.)	10 A (Max.)
3.3 V	8 A (Max.)	8 A (Max.)
-12 V	0.3 A (Max.)	0.3 A (Max.)
5 VSB	2 A (Max.)	2 A (Max.)
Max. Total Output:	90 W + 120 W (12 V pass thru.)	120 W
Performance Characteristics:		
Noise & Ripple:	< 120 mV	< 240 mV
Load Regulation	< 60 mV	< 100 mV
Efficiency:	Up to 90%	Up to 90%
Dimensions:	45 mm x 160 mm	45 mm x 160 mm
Weight:	82 g	104 g
Operating Temperature	-20°C~70°C	-20°C~70°C

Table 1-5: DC-to-DC Power Module Specifications

1.5 Power Adapter

The IBX-700 Series models are shipped with an 84 W power adapter.

Figure 1-2: Power Adapter

The specifications for the adapter are listed in **Table 1-6**:

Output	**Nominal**	12.0 V	
	Regulation	11.2 V – 12.6 V	
	Ripple/Noise	200 mV	
	Min.	0 A	
	Max.	7.0 A	
Protection	**Short Circuit**	Output can be shorted without damage and auto-recovery	
	Over-Voltage	Upper Trip Limit:	18 V DC
		Output Voltage	11.2 V DC~12.6 V DC
	Over-Current	Output current limit: 7.3 A ~ 8.8 A (max.) at C.C. Mode	
Time	**Hold Up**	5 ms	
Input	**Min.**	90 V	

	Nominal	115 V ~ 230 V	
	Max.	264 V	
	Frequency	47 Hz ~ 63 Hz	
	Steady AC Current	1.5 A (rms Max.)@100 V AC	
	Efficiency	80% (typical)	
Environment	**Temperature**	Operating	6.0 A: 0ºC ~ 40ºC 7.0 A: 0ºC ~ 25ºC
		Storage	-30ºC ~ 60ºC
	Relative Humidity	Operating (non-condensing)	8% ~ 80%
		Storage (non-condensing)	8% ~ 80%
	Vibration	0.5 G, 10 Hz~100 Hz, random vibration, 10mins/axis, 3 direction	
	Shock	Operating: 50 to 90 in/sec in 10 in/sec increments (all 6 sides)	
		Storage: 40 to 70 in/sec in 10 in/sec increments (all sides except top panel)	
Reliability	**MTBF**	50,000 hours of continuous operation at 25ºC	
	Leakage Current	0.25 mA @254 V AC 50 Hz	

Table 1-6: Power Adapter Specifications

1.6 Wireless LAN Module (Optional)

An Azurewave AW-GE780 wireless 802.11b/g PCIe mini card is installed on the optional PCI/PCIe riser card. The specifications for the wireless LAN module are listed in **Table 1-7**:

	AW-GE780
Standard	IEEE 802.11 b/g
Interface	PCIe mini card
Connectors	2 x U.FL-R-SMT Antenna connectors
Frequency Band	2412 MHz ~ 2472 MHz
Modulation	802.11g: OFDM 802.11b: CCK (11, 5.5 Mbps), DQPSK (2 Mbps), BPSK (1 Mbps)
Output Power	802.11b: typical 16 ± 1.5 dBm 802.11g: typical 13 ± 1.5 dBm
Receive Sensitivity	802.11b: typical -76 dBm at 11 Mbps 802.11g: typical -68 dBm at 54 Mbps
Operating Voltage	3.3 V
Dimensions	30.00 mm x 51 mm x 3.3 mm

Table 1-7: Wireless Module Specifications

THIS PAGE IS INTENTIONALLY LEFT BLANK

Chapter

2

Mechanical Description

2.1 IBX-700 Series Mechanical Overview

The IBX-700 Series RoHS compliant, Intel® Celeron® M Integrated Service Computer features industrial grade components that offer longer operating life and endurance over a wide temperature range. A preinstalled 80 GB 2.5” HDD and a drive bay for an optional ODD drive are located in the right side of the IBX-700 chassis. The motherboard and the power module are installed inside the bottom of the chassis.

Featuring one GbE, five USB, six serial communication ports, as well as audio, VGA, parallel port and cash drawer connectors, the IBX-700 Series offers system integrators and developers the best selection of robust and high performance integrated service platforms. A CompactFlash® slot on the rear panel supports one Type I or Type II CF card.

2.2 IBX-700 Series Physical Dimensions

The dimensions of the IBX-700 Series are listed below and shown in **Figure 2-1**.

- **Height**: 75.00 mm
- **Width**: 300.00 mm
- **Length**: 309.00 mm

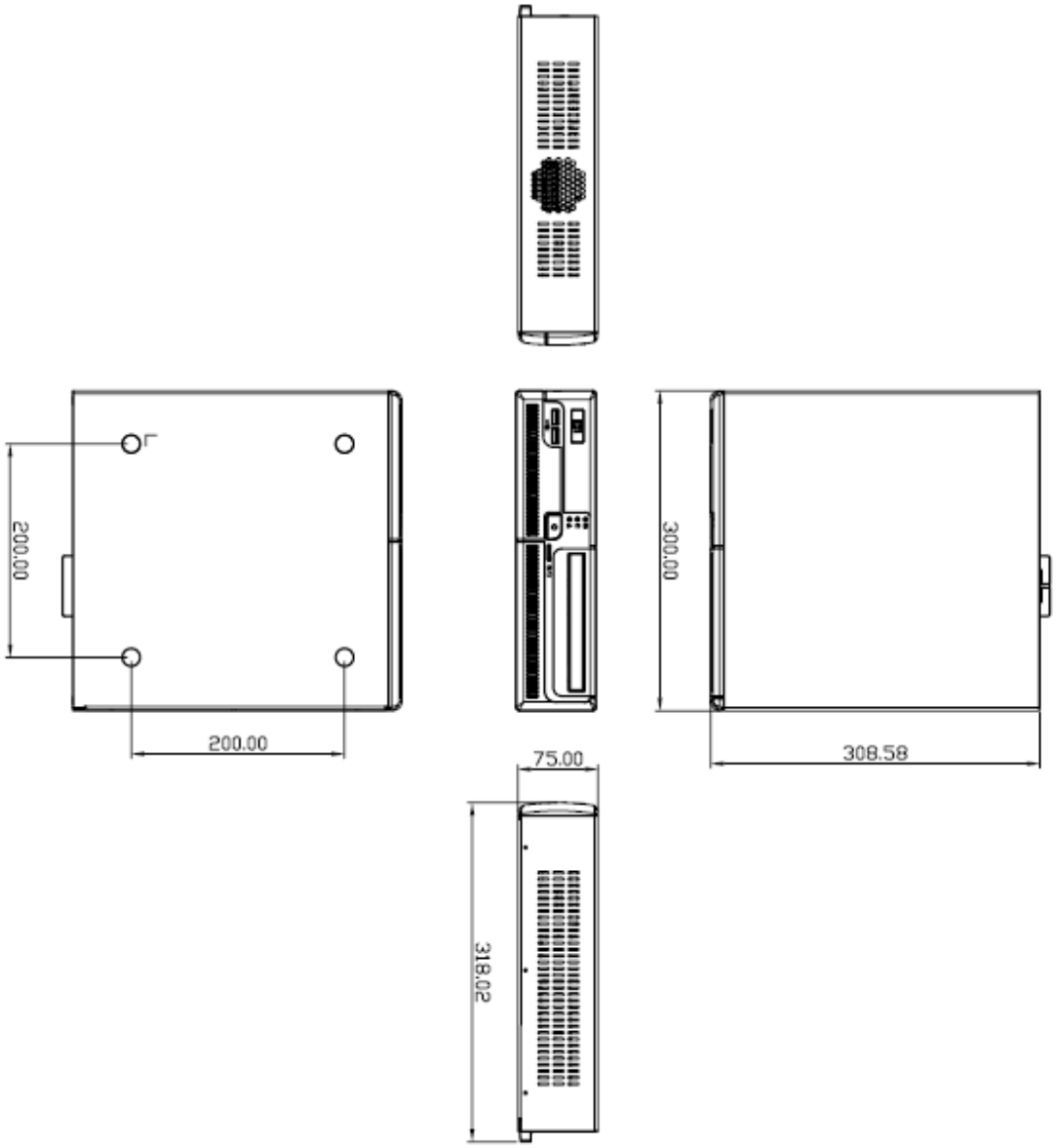


Figure 2-1: IBX-700 Series Dimensions (mm)

2.3 External Overview

2.3.1 Front Panel

The front panel of the IBX-700 Series has two USB 2.0 ports, indicators and power button. The optional DVD combo drive is also accessed from the front panel. An overview of the rear panel is shown in **Figure 2-3** below.

Figure 2-2: IBX-700 Series Front Panel

2.3.2 Rear Panel Overview

The IBX-700 Series contains the external I/O interface connectors, power connectors, serial port LEDs and a CF slot. An overview of the rear panel is shown in **Figure 2-3** below.

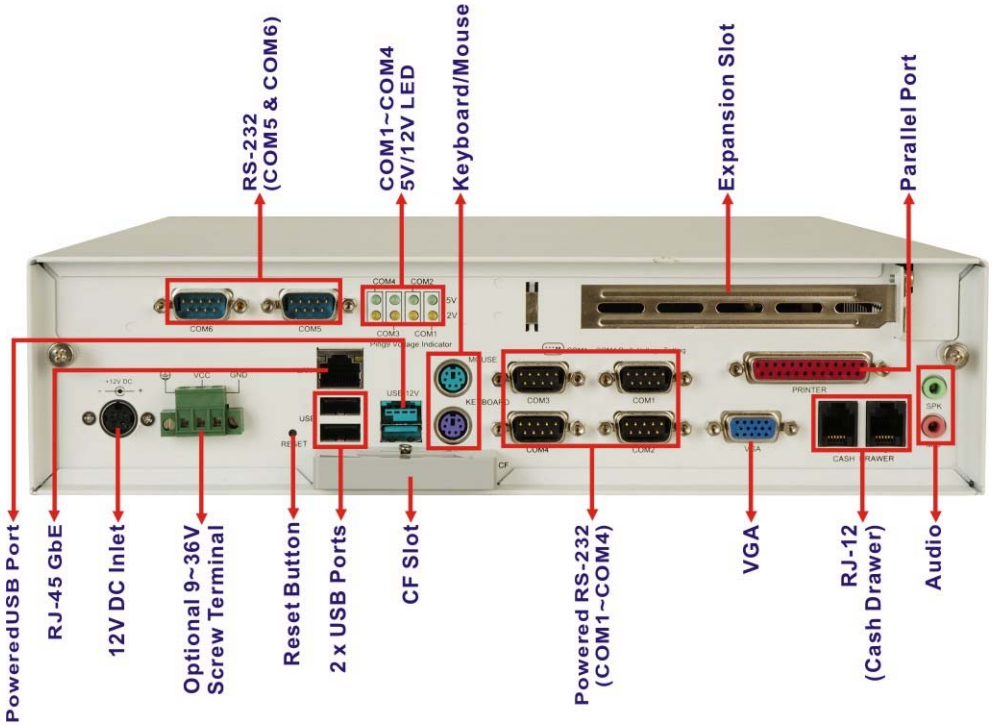


Figure 2-3: IBX-700 Series Rear Panel

2.3.2.1 Rear Panel Connectors and Indicators

The connectors, indicators and switches listed in this section are shown in **Figure 2-3** above. The rear panel I/O connectors are listed below:

- 1 x 12 V DC inlet
- 4 x RS-232 serial port connectors (COM1, COM2, COM3 and COM4 with selectable voltage)
- 2 x RS-232 serial port connectors (COM5 and COM6)
- 1 x RJ-45 GbE connector
- 2 x USB 2.0 ports
- 1 x PoweredUSB port (12 V output supported)
- 1 x CF Type II slot
- 1 x Keyboard connector
- 1 x Mouse connector
- 1 x Parallel port
- 1 x VGA connector
- 2 x RJ-12 connector (for cash drawer)
- 1 x Line-out connector
- 1 x Mic-in connector
- 1 x 9 V ~ 36 V screw terminal (optional)

The rear panel also contains the following button:

- 1 x Reset button

Status indicator LEDs on the rear panel include:

- 2 x COM1 pin-9 voltage LED [5 V (default) or 12 V]
- 2 x COM2 pin-9 voltage LED [5 V (default) or 12 V]
- 2 x COM3 pin-9 voltage LED [5 V (default) or 12 V]
- 2 x COM4 pin-9 voltage LED [5 V (default) or 12 V]

All the rear panel items listed above are shown in **Figure 2-3** above.

2.4 Internal Overview

The IBX-700 Series preinstalled internal components are listed below:

- 1 x IEI POS-9103/POS-9153 motherboard
- 1 x IEI IDD-12490A/IDD-9364120A power module
- 1 x 1 GB DDR2 DIMM module
- 1 x 80 GB 2.5” SATA HDD
- 1 x 2.5” DVD combo drive (optional)
- 1 x PCI/PCIe riser card (optional)
- 1 x Wireless LAN module (preinstalled on the optional PCI/PCIe riser card)

All the components are accessed by removing the cover case. The CF module is accessed through the rear panel.

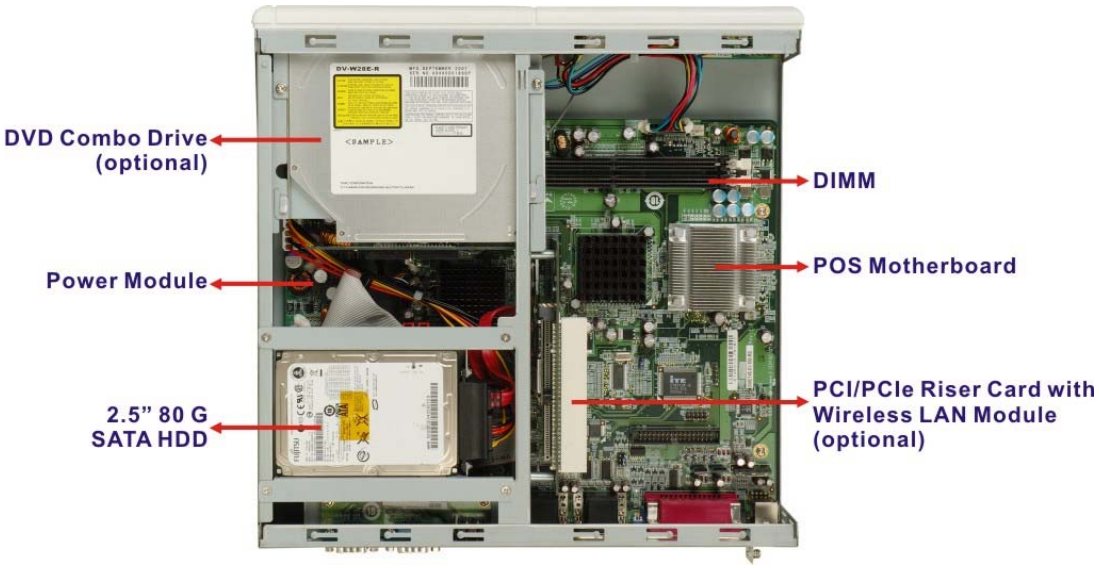


Figure 2-4: Internal Overview

Chapter

3

System Components

NOTE:

The jumpers and connectors shown in the section below are those jumpers and connectors that are relevant to the configuration and installation of the IBX-700. For a complete list of connectors on the IBX-700 Series motherboard, please refer to the **Appendix B**.

3.1 IBX-700 Series Motherboard

The IBX-700 Series all has a POS-9103 or POS-9153 motherboard installed in the system. The difference between these two motherboard is the preinstalled CPU. (See **Table 1-1**) The following sections describe the relevant connectors and jumpers on the motherboard.

3.1.1 POS Motherboard Overview

The locations of the POS-9103/POS-9153 jumpers and connectors used on the IBX-700 Series are shown in **Figure 3-1** below.

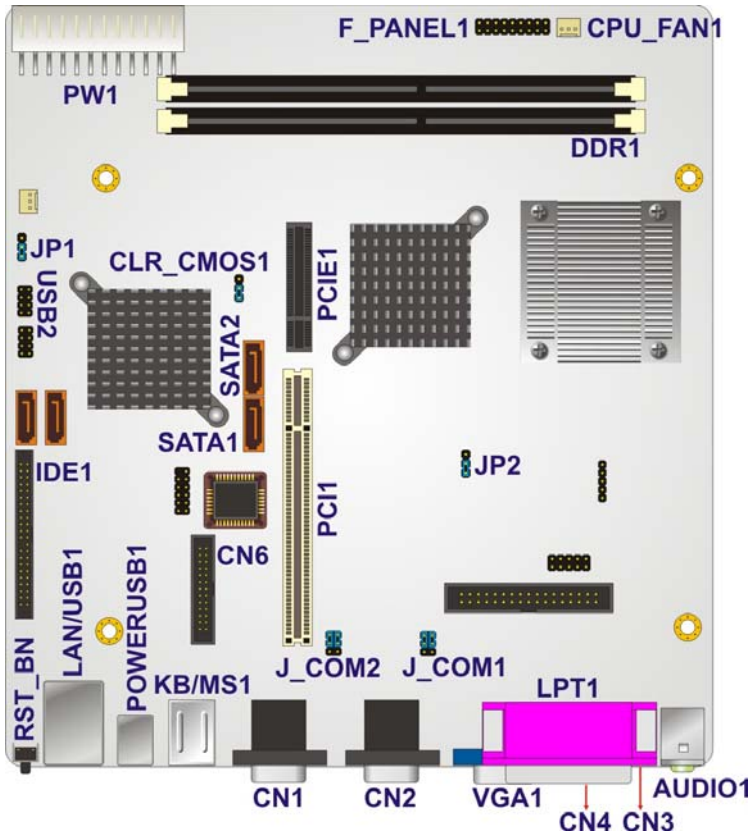


Figure 3-1: POS-9103/POS-9153 Jumper and Connector Locations

3.1.2 CPU Support

NOTE:

The IBX-700-9103 has a preinstalled 1.0 GHz ULV Intel® Celeron® M CPU on-board. If the CPU fails, the motherboard has to be replaced. Please contact the IEI reseller or vendor you purchased the IBX-700-9103 from or contact an IEI sales representative directly. To contact an IEI sales representative, please send an email to sales@iei.com.tw.

The POS-9103 motherboard comes with a preinstalled 1.5 GHz Intel® Celeron® M CPU while the POS-9153 motherboard comes with a preinstalled Socket 479 1.0 GHz ULV Intel® Celeron® M CPU.

3.1.2.1 Intel® Celeron® M Specifications

The specifications for the Intel® Celeron® M processor are listed below

- Features a new microarchitecture designed from the ground up:
  - Hardware control for improved stack management
  - Micro-ops fusion for instruction execution
  - Advanced branch prediction capability
  - Level 2 Advanced Transfer Cache (ATC) delivers a high data throughput channel between the Level 2 cache and processor core
- Streaming SIMD Extensions 2 capability adds 144 new instructions, including 128-bit SIMD integer arithmetic and 128-bit SIMD double-precision floating-point operation
- Support for uni-processor designs
- Compatible with Intel® architecture-based software
- Embedded life cycle support

3.1.3 Onboard Chipsets

3.1.3.1 Northbridge and Southbridge Chipsets

The following chipsets are preinstalled on the board:

	IBX-700-9103	IBX-700-9153
Northbridge	Intel® 910GMLE	Intel® 915GM
Southbridge	ICH6-M	ICH6-M

Table 3-1: Chipset Variations

The following three sections (**Section 3.1.3.2**, **Section 3.1.3.2** and **Section 3.1.3.4**) list some of the features of the Intel® 910GMLE, Intel® 915GM and the ICH6-M chipsets. For more information on these three chipsets please refer to the Intel website.

3.1.3.2 Intel® 910GMLE Northbridge Chipset

The Intel® 910GMLE Northbridge chipset comes with the following features:

- 400 MHz Front Side Bus
- Supports dual-channel non-ECC DDR2 400 MHz memory technology
- Intel® Stable Image Technology Supports a unified graphics driver. Enables hardware changes without impact to IT software image stability.
- With up to 2 GB/sec concurrent bandwidth, DMI provides up to 4 times faster I/O bandwidth compared to previous Intel proprietary Hub link I/O interface.
- Intel® Graphics Media Accelerator (GMA) 900
- PCI Express Bus Architecture

3.1.3.3 Intel® 915GM Northbridge Chipset

The Intel® 915GM Northbridge chipset comes with the following features:

- 533 MHz Front Side Bus
- Support for dual channel DDR2 400/533 MHz memory technology
- Direct Media Interface (DMI) chip interconnect can be implemented x4 or x2 widths, and provides up to 1 GB/s in each direction in full duplex
- Intel® Graphics Media Accelerator (GMA) 900
- Analog display support
- PCI Express 1.0a-compliant, and support for full 250 MB/s in each direction
- Long-term system reliability over wide operating conditions

3.1.3.4 ICH6-M Southbridge Chipset

The Intel® ICH6-M Southbridge chipset is connected to the Northbridge GMCH through the chip-to-chip Direct Media Interface (DMI). Some of the features of the Intel® ICH6-M are listed below.

- Complies with PCI Express Base Specification, Revision 1.0a
- Complies with PCI Local Bus Specification, Revision 2.3 and supports 33MHz PCI operations
- Supports ACPI Power Management Logic
- Contains:

- Enhanced DMA controller
- Interrupt controller
- Timer functions

- Integrated SATA host controller with DMA operations interfaced to two SATA connectors on the POS-9153
- Integrated IDE controller supports Ultra ATA 100/66/33
- Supports the four USB 2.0 devices on the POS-9153 with four UHCI controllers and one EHCI controller
- Complies with System Management Bus (SMBus) Specification, Version 2.0
- Supports Audio Codec ’97 (AC’97) Revision 2.3
- Supports Intel® High Definition Audio
- Contains Low Pin Count (LPC) interface
- Supports Firmware Hub (FWH) interface

3.1.4 Intel® 915GM Integrated Graphics Media Accelerator 900

The Intel® 915GM has the Intel® GMA900 integrated into the chipset. Some of the features of the GMA900 are listed below.

- Third-generation Graphics Core
  - 256-bit graphics core
  - 8/16/32 bpp
  - Up to 8.5 GB/sec memory bandwidth
  - 1.3 GP/sec and 1.3 GT/sec fill rate
  - 224MB maximum video memory
  - 2048x1536 at 85 Hz maximum resolution
  - Dynamic Display Modes for flat-panel and wide-screen support
  - Operating systems supported: Microsoft Windows* XP,
- Windows 2000, Linux-compatible (Xfree86 source available)
- High-performance 3D
  - Up to 4 pixels per clock rendering
  - Microsoft DirectX* 9 Hardware Acceleration Features:
  - Pixel Shader 2.0
  - Volumetric Textures
  - Shadow Maps

- Slope Scale Depth Bias
- Two-Sided Stencil
- Microsoft DirectX* 9 Vertex Shader 2.0 and Transform and

- Lighting supported in software through highly optimized
- Processor Specific Geometry Pipeline (PSGP)
  - DirectX Texture Decompression
  - OpenGL* 1.4 support
- Advanced Display Technology
  - 400 MHz DAC frequency for up to 2048x1526 resolution for both analog and digital displays
  - Two Serial Digital Video Out (SDVO) ports for flat-panel monitors and/or TV-out support via Advanced Digital
  - Display 2 (ADD2) cards
  - Multiple display types (DVI-I, DVI-D, CRT) for dual monitor capabilities
  - Hardware motion compensation support for DVD playback
  - HDTV 720p and 1080i display resolution support
  - 16x9 Aspect Ratio for wide screen displays
- High Quality Media Support
  - Up and Down Scaling of Video Content
  - High Definition Content Decode
  - 5x3 Overlay Filtering
- Hardware Motion Compensation support for DVD playback

3.1.5 Ethernet Controller Specifications

3.1.5.1 Overview

A highly integrated and cost-effective single-chip, fast Broadcom BCM5787M PCI Express (PCIe) GbE Ethernet controller is interfaced through the PCIe bus to the CPU and system chipset. The Broadcom BCM5787M controller provides 10Mbps, 100Mbps or 1000Mbps Ethernet connectivity to the POS-9153.

3.1.5.2 PCI Express GbE Features

The Broadcom BCM5787M GbE controller combines a triple-speed IEEE 802.3 compliant Media Access Controller (MAC) with a triple-speed Ethernet transceiver, a PCIe bus

interface, and an on-chip buffer memory. Some of the BCM5787 controller features are listed below:

- Integrated 10/100/1000BASE-T transceiver
- Automatic MDI crossover function
- PCIe v1.0a
- 10/100/1000BASE-T full/half-duplex MAC
- Wake on LAN support meeting the ACPI requirements
- Statistics for SNMP MIB II, Ethernet-like MIB, and Ethernet MIB (802.3z, clause 30)
- Serial EEPROM or serial flash support
- JTAG support

3.2 Peripheral Interface Connectors

Section 3.2.1 lists all the peripheral interface connectors seen in **Section 3.1.1**.

3.2.1 Peripheral Interface Connectors

Table 3-2 shows a list of the peripheral interface connectors on the POS motherboard used for the IBX-700 Series.

Connector	Type	Label
ATX power connector	24-pin connector	PW1
DIMM socket	240-pin connector	DDR1
Front panel connector	18-pin header	F_PANEL1
PCI socket	124-pin PCI socket	PCI1
PCIe x1 socket	36-pin PCIe socket	PCIE1
Serial ports (COM5, COM6) and indicators (for COM1~COM4) connector	26-pin header	CN6
SATA connector	7-pin connector	SATA1
SATA connector	7-pin connector	SATA2

USB connector	8-pin header	USB2

Table 3-2: Peripheral Interface Connectors

3.2.2 External Interface Panel Connectors

Table 3-3 lists the rear panel connectors on the POS motherboard.

Connector	Type	Label
Audio jacks (line-out, mic-in)	Audio jack	AUDIO1
Cash drawer connector (1)	RJ-12 connector	CN3
Cash drawer connector (2)	RJ-12 connector	CN4
CompactFlash® slot	50-pin connector	CF1
Ethernet and USB combo connector	RJ-45 connector	LAN/USB1
Keyboard/mouse connector	PS/2 connector	KB/MS1
Parallel port	DB-26	LPT1
Reset button	Push-button	RST_BN
RS-232 serial port (COM1, COM2)	DB-9 connector	CN1
RS-232 serial port (COM3, COM4)	DB-9 connector	CN2
USB port (PoweredUSB, 12 V)	USB port	POWERUSB1
VGA connector	DB-15 connector	VGA1

Table 3-3: Rear Panel Connectors

3.3 On-board Jumpers

NOTE:

A jumper is a metal bridge used to close an electrical circuit. It consists of two or three metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To CLOSE/SHORT a jumper means connecting the pins of the jumper with the plastic clip and to OPEN a jumper means removing the plastic clip from a jumper.

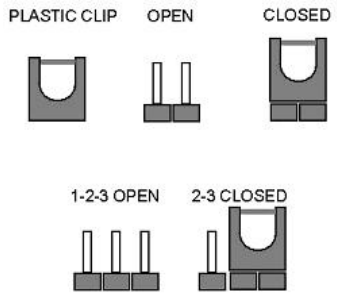


Figure 3-2: Jumpers

The POS motherboard has several onboard jumpers (**Table 3-4**).

Description	Label	Type
ATX power select	JP1	3-pin header
Clear CMOS	CLR_CMOS1	3-pin header
FSB select	JP2	3-pin header
COM1/COM2 power select	J_COM1	6-pin header
COM3/COM4 power select	J_COM2	6-pin header

Table 3-4: Jumpers

3.3.1 ATX Power Select Jumper Settings

Jumper Label: **JP1**

Jumper Type: 3-pin header

Jumper Settings: See **Table 3-5**

Jumper Location: See **Figure 3-3**

The ATX Power Select jumper specifies the systems power mode as AT or ATX. ATX Power Select jumper settings are shown in **Table 3-5**.

ATX Power Select	Description	
Short 1-2	Use ATX power	Default
Short 2-3	Use AT power	

Table 3-5: ATX Power Select Jumper Settings

The location of the ATX Power Select jumper is shown in **Figure 3-3** below.

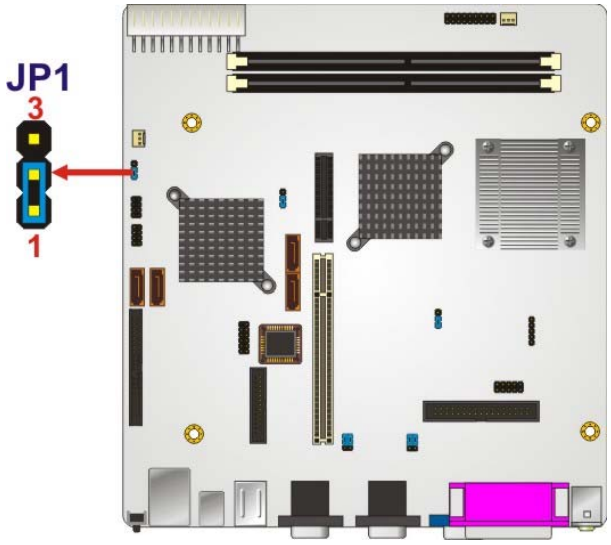


Figure 3-3: ATX Power Select Jumper Location

3.3.2 FSB Select Jumper Settings

Jumper Label: **JP2**

Jumper Type: 3-pin header

Jumper Settings: See **Table 3-6**

Jumper Location: See **Figure 3-4**

The FSB Select jumper specifies the front side bus (FSB) as 400 MHz or 533 MHz. FSB Select jumper settings are shown in **Table 3-5**.

FSB Select	Description	
Short 1-2	400 MHz	Default
Short 2-3	533 MHz	

Table 3-6: FSB Select Jumper Settings

The location of the FSB Select jumper is shown in **Figure 3-3** below.

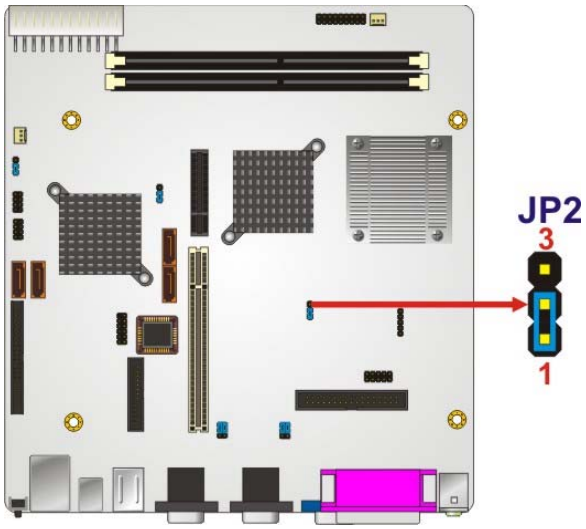


Figure 3-4: FSB Select Jumper Location

3.3.3 Clear CMOS Jumper

Jumper Label: **CLR_CMOS1**

Jumper Type: 3-pin header

Jumper Settings: See **Table 3-7**

Jumper Location: See **Figure 3-5**

If the IBX-700 Series fails to boot due to improper BIOS settings, the clear CMOS jumper clears the CMOS data and resets the system BIOS information. To do this, use the jumper cap to close pins 2 and 3 for a few seconds then reinstall the jumper clip back to pins 1 and 2.

If the "CMOS Settings Wrong" message is displayed during the boot up process, the fault may be corrected by pressing the F1 to enter the CMOS Setup menu. Do one of the following:

- Enter the correct CMOS setting
- Load Optimal Defaults
- Load Failsafe Defaults.

After having done one of the above, save the changes and exit the CMOS Setup menu.

The clear CMOS jumper settings are shown in **Table 3-7**.

Clear CMOS	Description	
Short 1 - 2	Keep CMOS Setup	Default
Short 2 - 3	Clear CMOS Setup	

Table 3-7: Clear CMOS Jumper Settings

The location of the clear CMOS jumper is shown in **Figure 3-5** below.

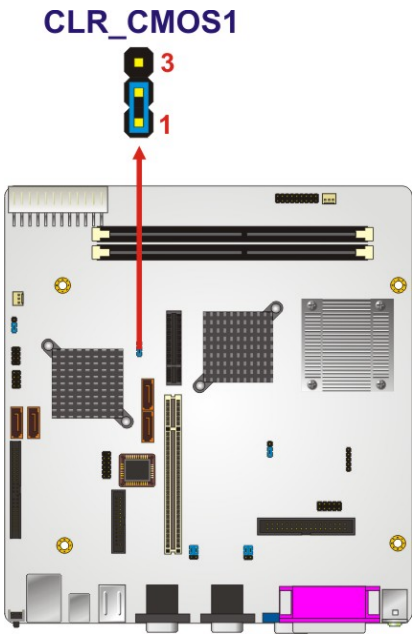


Figure 3-5: Clear CMOS Jumper

3.3.4 COM 1/2 Pin 9 Setting Jumper

Jumper Label:	**J_COM1**
Jumper Type:	6-pin header
Jumper Settings:	See **Table 3-8**
Jumper Location:	See **Figure 3-6**

The COM 1/2 Pin 9 Setting jumper configures pin 9 on COM 1 and COM 2 as either a +5 V, or +12 V power source. The COM 1/2 Pin 9 Setting jumper selection options are shown in **Table 3-8**.

COM 1/2 Voltage	Description	
Short 1 – 3	COM 1 Pin 9 use +5 V	Default
Short 3 – 5	COM 1 Pin 9 use +12 V	
Short 2 – 4	COM 2 Pin 9 use +5 V	Default
Short 4 – 6	COM 2 Pin 9 use +12 V	

Table 3-8: COM 1/2 Pin 9 Setting Jumper Settings

The COM 1/2 Pin 9 Setting jumper location is shown in **Figure 3-6** below.

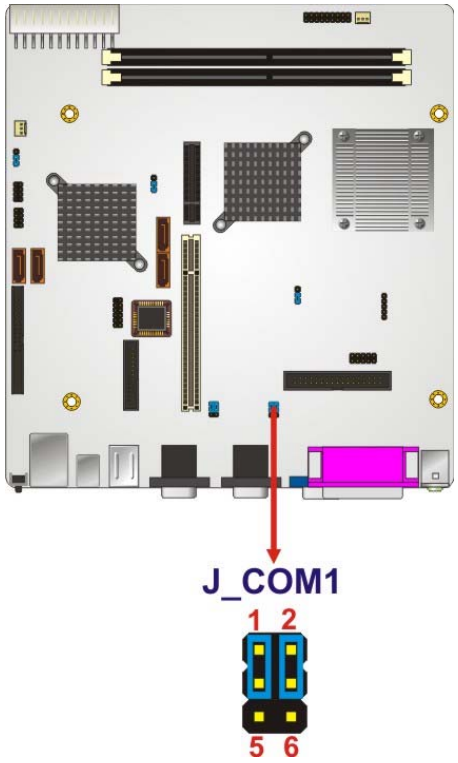


Figure 3-6: COM 1/2 Pin 9 Setting Jumper Location

3.3.5 COM 3/4 Pin 9 Setting Jumper

Jumper Label:	**J_COM2**
Jumper Type:	6-pin header
Jumper Settings:	See **Table 3-9**
Jumper Location:	See **Figure 3-7**

The COM 3/4 Pin 9 Setting jumper configures pin 9 on COM 3 and COM 4 as either a +5 V, or +12 V power source. The COM 3/4 Pin 9 Setting jumper selection options are shown in **Table 3-9**.

COM 3/4 Voltage	Description	
Short 1 – 3	COM 3 Pin 9 use +5 V	Default
Short 3 – 5	COM 3 Pin 9 use +12 V	
Short 2 – 4	COM 4 Pin 9 use +5 V	Default
Short 4 – 6	COM 4 Pin 9 use +12 V	

Table 3-9: COM 3/4 Pin 9 Setting Jumper Settings

The COM 3/4 Pin 9 Setting jumper location is shown in **Figure 3-6** below.

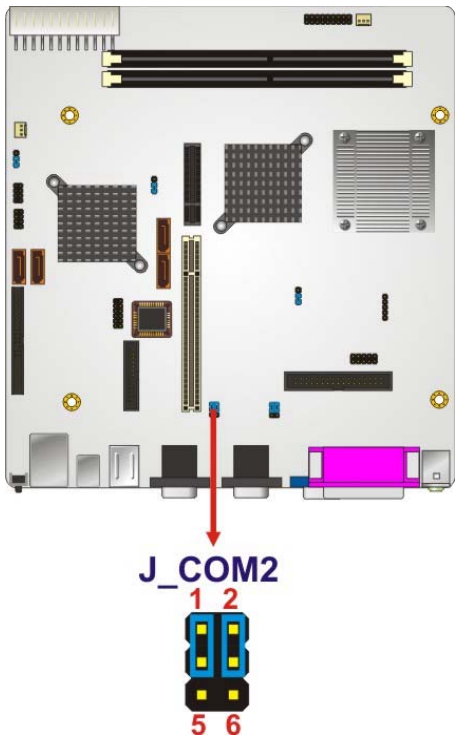


Figure 3-7: COM 3/4 Pin 9 Setting Jumper Location

Chapter

4

Installation

4.1 Anti-static Precautions

WARNING:

If the following anti-static precautions are not followed, a user may be injured and the system irreparably damaged.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the POS motherboard and the power module. (Dry climates are especially susceptible to ESD.) It is therefore critical that whenever the IBX-700 Series is opened and any electrical component handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband***: Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- ***Self-grounding***: Before handling the board, touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.

4.2 Installation Procedure

4.2.1 Installation Procedure Overview

To properly install the IBX-700 Series, the following steps must be followed. Detailed descriptions of these instructions are listed in the sections that follow.

Step 1: Unpacking

Step 2: Install the CF card

Step 3: Install the four foot pads

Step 4: Connect the rear panel peripheral connectors

Step 5: Power the system up

4.2.2 Unpacking

After the IBX-700 Series is received make sure the following components are included in the package. If any of these components are missing, please contact the IBX-700 Series reseller or vendor where it was purchased or contact an IEI sales representative immediately.

STANDARD		
Quantity	**Item**	**Image**
1	IBX-700 Series Integrated Service Computer	
1	Power adaptor (**P/N**: 63000-FSP0841ADC11118-RS)	
1	Power cord (**P/N**: 32000-085000-RS for USA) (**P/N**: 32000-089000-RS for EU)	
1	Screw set (**P/N**: 19600-000215-RS)	
1	DVD-ROM SATA cable (**P/N**: 32000-108900-RS)	
4	Foot pads (**P/N**: 46007-002200-RS)	
1	Utility CD (manual, drivers and iSMM)	

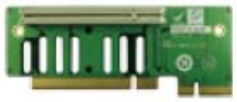
OPTIONAL		
1	1 GB CompactFlash® card with Windows WEPOS pre-installed (**P/N**: IBXCF-P9103-WEPOS for IBX-700-9103) (**P/N**: IBXCF-P9153-WEPOS for IBX-700-9153)	
1	1 GB CompactFlash® card with Windows XPE pre-installed (**P/N**: IBXCF-P9103-XPE for IBX-700-9103) (**P/N**: IBXCF-P9153-XPE for IBX-700-9153)	
1	Riser card with one PCI and one PCIe mini (**P/N**: PCIR-700)	
1	Riser card with one PCIe x1 and one PCIe mini (**P/N**: PCIER-700)	

Table 4-1: Package List Contents

4.2.3 CompactFlash® Card Installation

The IBX-700 Series has one CF slot on the rear panel. To install the CF card, follow the instructions below.

Step 1: Locate the CF card slot plastic cover on the rear panel.

Step 2: Remove the CF card slot cover by removing the retention screw (**Figure 4-1**).

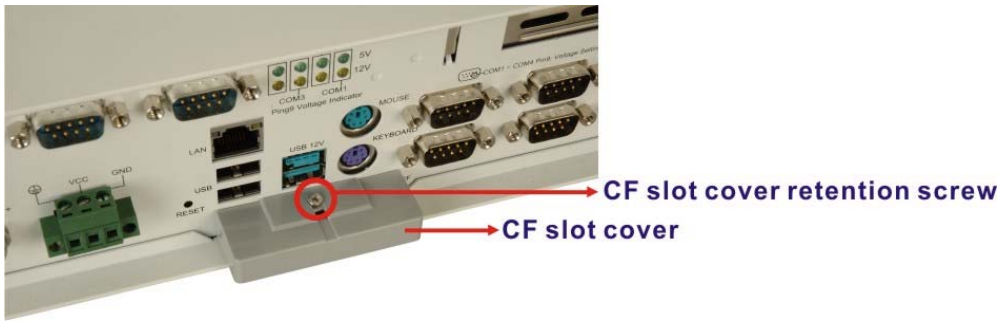


Figure 4-1: CF Card Slot Cover Retention Screw

Step 3: Insert the CF card into the slot.

Step 4: Replace the CF card slot cover.

4.2.4 Foot Pad Installation

The IBX-700 Series is shipped with four foot pads. To install the foot pads, follow the instructions below.

Step 1: Turn the IBX-700 over.

Step 2: Carefully mark the locations of the four foot pads on the bottom surface.

Step 3: Glue the foot pads at the marked locations on the bottom surface.

4.2.5 Cable Connections

Once the system has been mounted on the wall, the following connectors can be connected to the system.

- Audio jacks
- Keyboard/Mouse connectors
- VGA cable connector
- Parallel port connector
- Serial port connectors
- RJ-45 connector
- USB and PoweredUSB™ devices can be connected to the system.

The cable connection locations are shown in **Figure 2-3**.

4.3 Power-On Procedure

4.3.1 Installation Checklist

WARNING:

Make sure a power supply with the correct input voltage is being fed into

the system. Incorrect voltages applied to the system may cause damage to the internal electronic components and may also cause injury to the user.

To power on the IBX-700 please make sure of the following:

- The memory module is installed
- The wireless LAN module is installed
- The CF module is installed
- The cover case is installed
- All peripheral devices (VGA monitor, serial communications devices etc.) are connected
- The power cables are plugged in
- The system is securely mounted

4.3.2 Power-on Procedure

To power-on the IBX-700 Series please follow the steps below:

Step 1: Push the power button on the front panel.

Step 2: Once turned on, the blue power LED should be turned on. See **Figure 4-2**.

Figure 4-2: Power Button and Power LED

Chapter

5

AMI BIOS

5.1 Introduction

A licensed copy of AMI BIOS is preprogrammed into the ROM BIOS. The BIOS setup program allows users to modify the basic system configuration. This chapter describes how to access the BIOS setup program and the configuration options that may be changed.

5.1.1 Starting Setup

The AMI BIOS is activated when the computer is turned on. The setup program can be activated in one of two ways.

1. Press the **DELETE** key as soon as the system is turned on or
2. Press the **DELETE** key when the "**Press Del to enter SETUP**" message appears on the screen.

If the message disappears before the **DELETE** key is pressed, restart the computer and try again.

5.1.2 Using Setup

Use the arrow keys to highlight items, press **ENTER** to select, use the PageUp and PageDown keys to change entries, press **F1** for help and press **ESC** to quit. Navigation keys are shown in.

Key	Function
Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item on the left hand side
Right arrow	Move to the item on the right hand side
Esc key	Main Menu – Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
Page Up key	Increase the numeric value or make changes
Page Dn key	Decrease the numeric value or make changes

F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2 /F3 key	Change color from total 16 colors. F2 to select color forward.
F10 key	Save all the CMOS changes, only for Main Menu

Table 5-1: BIOS Navigation Keys

5.1.3 Getting Help

When **F1** is pressed a small help window describing the appropriate keys to use and the possible selections for the highlighted item appears. To exit the Help Window press **Esc** or the **F1** key again.

5.1.4 Unable to Reboot After Configuration Changes

If the computer cannot boot after changes to the system configuration is made, CMOS defaults. Use the jumper described in **Section 3.3.3**.

5.1.5 BIOS Menu Bar

The **menu bar** on top of the BIOS screen has the following main items:

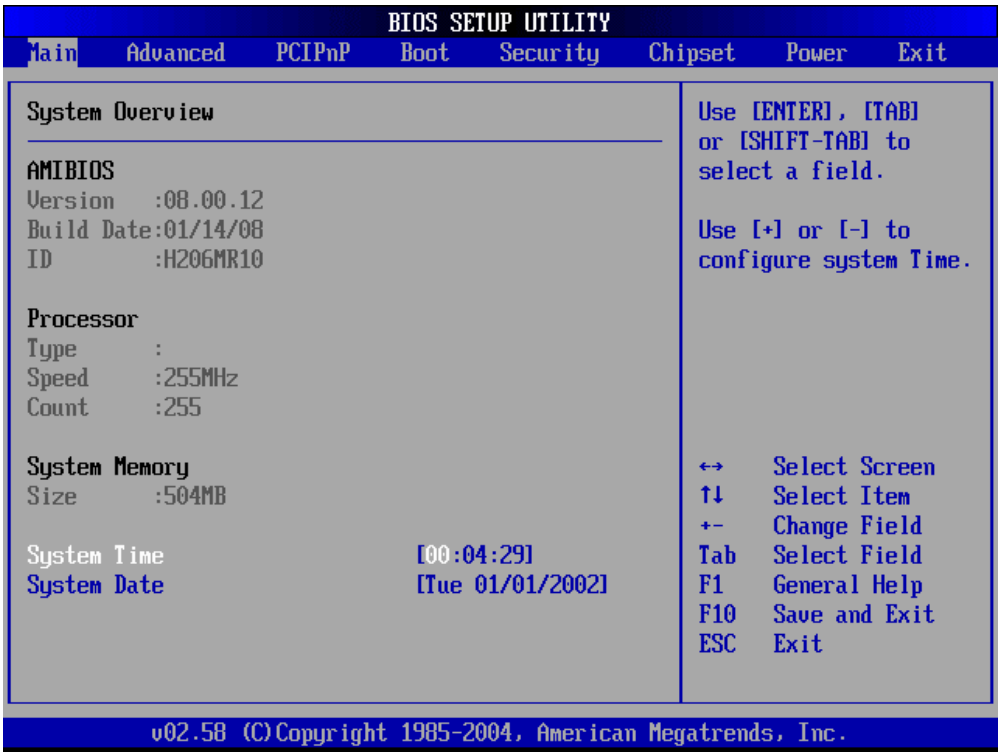
- **Main** Changes the basic system configuration.
- **Advanced** Changes the advanced system settings.
- **PCIPnP** Changes the advanced PCI/PnP Settings
- **Boot** Changes the system boot configuration.
- **Security** Sets User and Supervisor Passwords.
- **Chipset** Changes the chipset settings.
- **Power** Changes power management settings.
- **Exit** Selects exit options and loads default settings

The following sections completely describe the configuration options found in the menu items at the top of the BIOS screen and listed above.

5.2 Main

The **Main** BIOS menu (**BIOS Menu 1**) appears when the **BIOS Setup** program is entered.

The **Main** menu gives an overview of the basic system information.



BIOS Menu 1: Main

➔ System Overview

The **System Overview** lists a brief summary of different system components. The fields in **System Overview** cannot be changed. The items shown in the system overview include:

- AMI BIOS: Displays auto-detected BIOS information
  - **Version**: Current BIOS version
  - **Build Date**: Date the current BIOS version was made
  - **ID**: Installed BIOS ID
- Processor: Displays auto-detected CPU specifications
  - **Type**: Names the currently installed processor
  - **Speed**: Lists the processor speed

- **Count**: The number of CPUs on the motherboard

- System Memory: Displays the auto-detected system memory.
  - **Size**: Lists memory size

The System Overview field also has two user configurable fields:

➔ **System Time [xx:xx:xx]**

Use the **System Time** option to set the system time. Manually enter the hours, minutes and seconds.

➔ **System Date [xx/xx/xx]**

Use the **System Date** option to set the system date. Manually enter the day, month and year.

5.3 Advanced

Use the **Advanced** menu (**BIOS Menu 2**) to configure the CPU and peripheral devices through the following sub-menus:

WARNING!

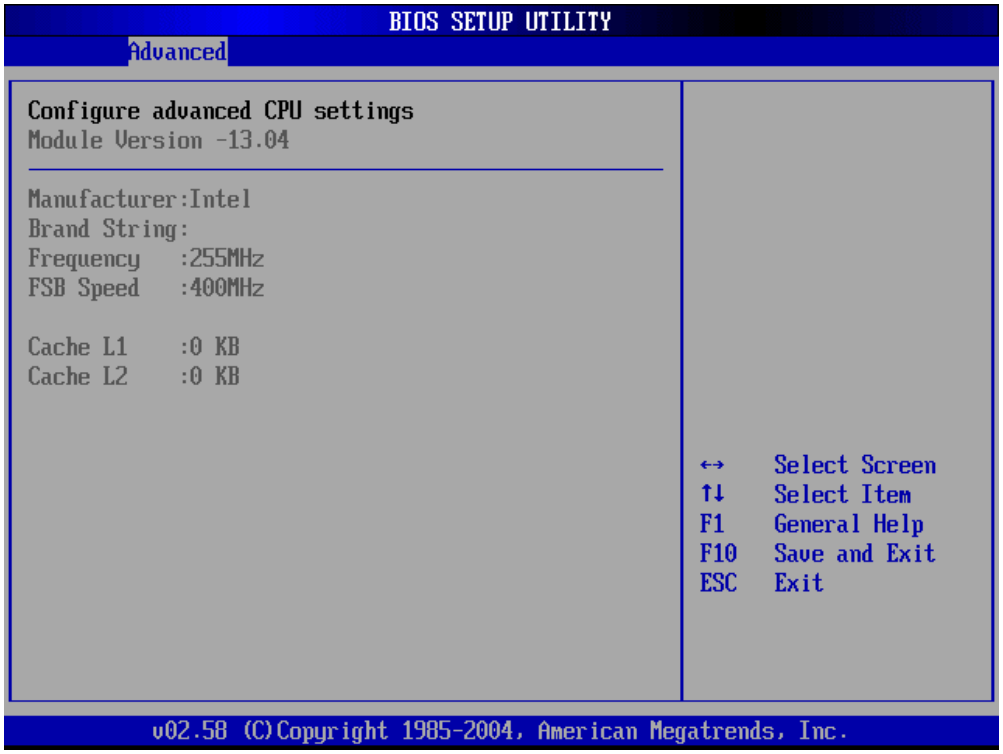
Setting the wrong values in the sections below may cause the system to malfunction. Make sure that the settings made are compatible with the hardware.

- CPU Configuration (see **Section 5.3.1**)
- IDE Configuration (see **Section 5.3.2**)
- Super IO Configuration (see **Section 5.3.3**)
- Hardware Health Configuration (see **Section 5.3.4**)
- Remote Access Configuration (see **Section 5.3.5**)
- USB Configuration (see **Section 5.3.6**)

BIOS Menu 2: Advanced

5.3.1 CPU Configuration

Use the **CPU Configuration** menu (**BIOS Menu 3**) to view detailed CPU specifications and configure the CPU.



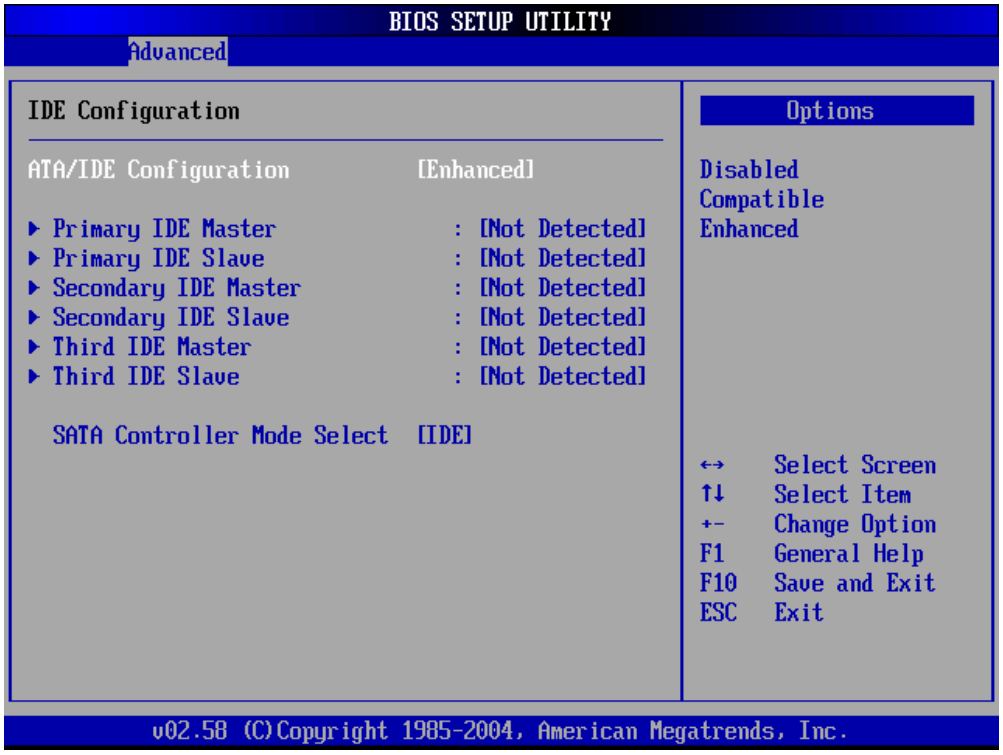
BIOS Menu 3: CPU Configuration

The CPU Configuration menu (**BIOS Menu 3**) lists the following CPU details:

- Manufacturer: Lists the name of the CPU manufacturer
- Brand String: Lists the brand name of the CPU being used
- Frequency: Lists the CPU processing speed
- FSB Speed: Lists the FSB speed
- Cache L1: Lists the CPU L1 cache size
- Cache L2: Lists the CPU L2 cache size

5.3.2 IDE Configuration

Use the **IDE Configuration** menu (**BIOS Menu 4**) to change and/or set the configuration of the IDE devices installed in the system.



BIOS Menu 4: IDE Configuration

➔ **ATA/IDE Configurations [Enhanced]**

Use the **ATA/IDE Configurations** option to configure the ATA/IDE controller.

➔ **Disabled** Disables the on-board ATA/IDE controller.

➔ **Compatible** Configures the on-board ATA/IDE controller to be in compatible mode. In this mode, a SATA channel will replace one of the IDE channels. This mode supports up to 4 storage devices.

➔ **Enhanced** **DEFAULT** Configures the on-board ATA/IDE controller to be in Enhanced mode. In this mode, IDE channels and SATA channels are separated. This mode supports up to 6 storage devices. Some legacy OS do not support this mode.

➔ **IDE Master and IDE Slave**

When entering setup, BIOS auto detects the presence of IDE devices. BIOS displays the status of the auto detected IDE devices. The following IDE devices are detected and are shown in the **IDE Configuration** menu:

- Primary IDE Master
- Primary IDE Slave
- Secondary IDE Master
- Secondary IDE Slave
- Third IDE Master
- Third IDE Slave

The **IDE Configuration** menu (**BIOS Menu 4**) allows changes to the configurations for the IDE devices installed in the system. If an IDE device is detected, and one of the above listed four BIOS configuration options are selected, the IDE configuration options shown in **Section 5.3.2.1** appear.

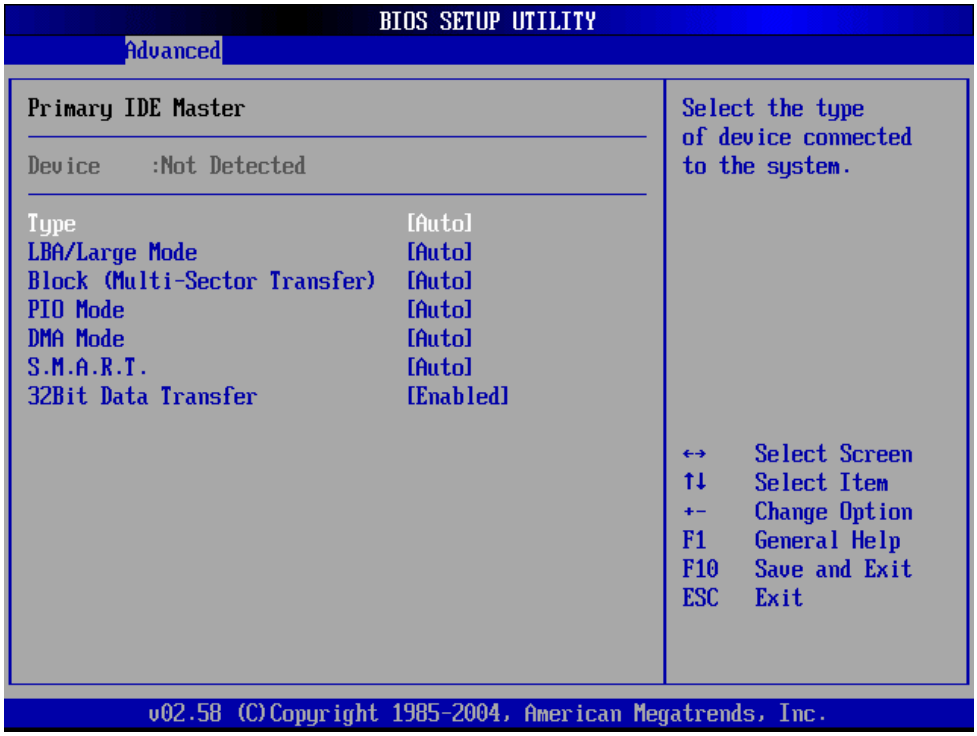
➔ **SATA Controller Mode Select [IDE]**

Use the **SATA Controller Mode Select** option to configure SATA devices as normal IDE devices.

➔	**IDE**	**DEFAULT**	Configures SATA devices as normal IDE device.
➔	**RAID**		Configures SATA devices as a RAID device.
➔	**AHCI**		Configures SATA devices as a AHCI device.

5.3.2.1 IDE Master, IDE Slave

Use the **IDE Master** and **IDE Slave** configuration menu to view both primary and secondary IDE device details and configure the IDE devices connected to the system.



BIOS Menu 5: IDE Master and IDE Slave Configuration

➔ Auto-Detected Drive Parameters

The "grayed-out" items in the left frame are IDE disk drive parameters automatically detected from the firmware of the selected IDE disk drive. The drive parameters are listed as follows:

- Device: Lists the device type (e.g. hard disk, CD-ROM etc.)
- Type: Indicates the type of devices a user can manually select
- Vendor: Lists the device manufacturer
- Size: List the storage capacity of the device.
- LBA Mode: Indicates whether the LBA (Logical Block Addressing) is a method of addressing data on a disk drive is supported or not.
- Block Mode: Block mode boosts IDE drive performance by increasing the amount of data transferred. Only 512 bytes of data can be transferred per interrupt if block mode is not used. Block mode allows transfers of up to 64 KB per interrupt.
- PIO Mode: Indicates the PIO mode of the installed device.

- Async DMA: Indicates the highest Asynchronous DMA Mode that is supported.
- Ultra DMA: Indicates the highest Synchronous DMA Mode that is supported.
- S.M.A.R.T.: Indicates whether or not the Self-Monitoring Analysis and Reporting Technology protocol is supported.

➔ **Type [Auto]**

Use the **Type** BIOS option select the type of device the AMIBIOS attempts to boot from after the Power-On Self-Test (POST) is complete.

➔ **Not Installed** BIOS is prevented from searching for an IDE disk drive on the specified channel.

➔ **Auto** **DEFAULT** The BIOS auto detects the IDE disk drive type attached to the specified channel. This setting should be used if an IDE hard disk drive is attached to the specified channel.

➔ **CD/DVD** The CD/DVD option specifies that an IDE CD-ROM drive is attached to the specified IDE channel. The BIOS does not attempt to search for other types of IDE disk drives on the specified channel.

➔ **ARMD** This option specifies an ATAPI Removable Media Device. These include, but are not limited to:

- ➔ **ZIP**
- ➔ **LS-120**

➔ **LBA/Large Mode [Auto]**

Use the **LBA/Large Mode** option to disable or enable BIOS to auto detects LBA (Logical Block Addressing). LBA is a method of addressing data on a disk drive. In LBA mode, the maximum drive capacity is 137 GB.

➔ **Disabled** BIOS is prevented from using the LBA mode control on the specified channel.

➔ **Auto** **DEFAULT** BIOS auto detects the LBA mode control on the specified channel.

➔ **Block (Multi Sector Transfer) [Auto]**

Use the **Block (Multi Sector Transfer)** to disable or enable BIOS to auto detect if the device supports multi-sector transfers.

➔ **Disabled** BIOS is prevented from using Multi-Sector Transfer on the specified channel. The data to and from the device occurs one sector at a time.

➔ **Auto** **DEFAULT** BIOS auto detects Multi-Sector Transfer support on the drive on the specified channel. If supported the data transfer to and from the device occurs multiple sectors at a time.

➔ **PIO Mode [Auto]**

Use the **PIO Mode** option to select the IDE PIO (Programmable I/O) mode program timing cycles between the IDE drive and the programmable IDE controller. As the PIO mode increases, the cycle time decreases.

➔ **Auto** **DEFAULT** BIOS auto detects the PIO mode. Use this value if the IDE disk drive support cannot be determined.

➔ **0** PIO mode 0 selected with a maximum transfer rate of 3.3MBps

➔ **1** PIO mode 1 selected with a maximum transfer rate of 5.2MBps

➔ **2** PIO mode 2 selected with a maximum transfer rate of 8.3MBps

➔ **3** PIO mode 3 selected with a maximum transfer rate of 11.1MBps

➔ **4** PIO mode 4 selected with a maximum transfer rate of 16.6MBps (This setting generally works with all hard disk drives manufactured after 1999. For other disk drives, such as IDE CD-ROM drives, check the specifications of the drive.)

➔ **DMA Mode [Auto]**

Use the **DMA Mode** BIOS selection to adjust the DMA mode options.

➔ **Auto** **DEFAULT** BIOS auto detects the DMA mode. Use this value if the IDE disk drive support cannot be determined.

➔ **S.M.A.R.T [Auto]**

Use the **S.M.A.R.T** option to auto-detect, disable or enable Self-Monitoring Analysis and Reporting Technology (SMART) on the drive on the specified channel. **S.M.A.R.T** predicts impending drive failures. The **S.M.A.R.T** BIOS option enables or disables this function.

➔ **Auto** **DEFAULT** BIOS auto detects HDD SMART support.

➔ **Disabled** Prevents BIOS from using the HDD SMART feature.

➔ **Enabled** Allows BIOS to use the HDD SMART feature

➔ **32Bit Data Transfer [Enabled]**

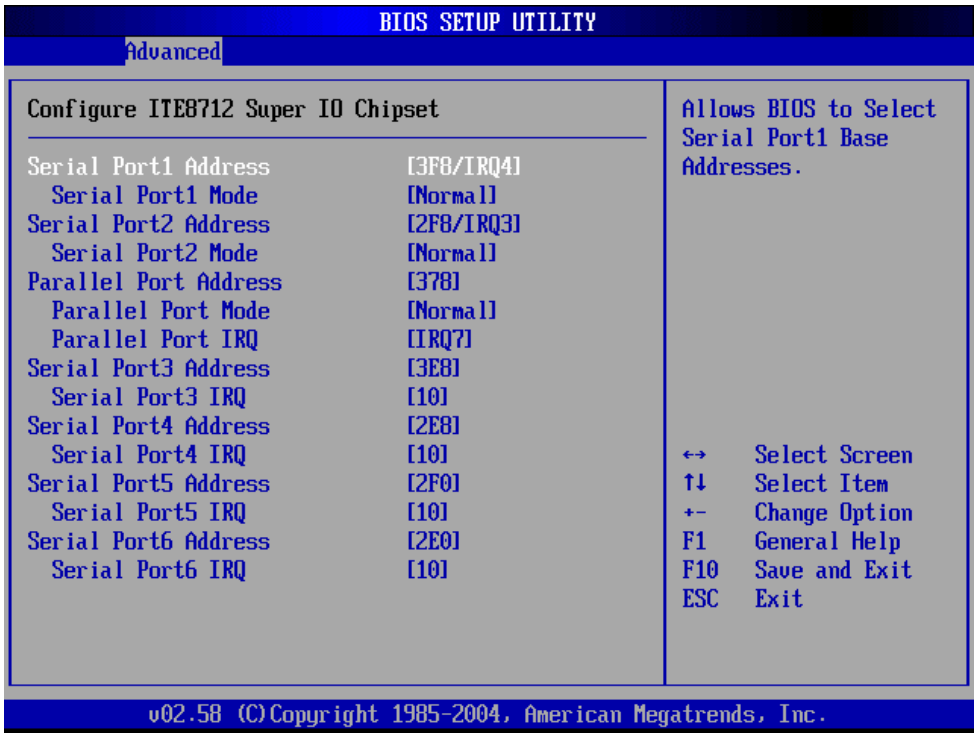
Use the **32Bit Data Transfer** BIOS option to enables or disable 32-bit data transfers.

➔ **Disabled** Prevents the BIOS from using 32-bit data transfers.

➔ **Enabled** **DEFAULT** Allows BIOS to use 32-bit data transfers on supported hard disk drives.

5.3.3 Super IO Configuration

Use the **Super IO Configuration** menu (**BIOS Menu 6**) to set or change the configurations for the FDD controllers, parallel ports and serial ports.



BIOS Menu 6: Super IO Configuration

➔ **Serial Port1 Address [3F8/IRQ4]**

Use the **Serial Port1 Address** option to select the Serial Port 1 base address.

➔ **Disabled** No base address is assigned to Serial Port 1

➔ **3F8/IRQ4** **DEFAULT** Serial Port 1 I/O port address is 3F8 and the interrupt address is IRQ4

➔ **3E8/IRQ4** Serial Port 1 I/O port address is 3E8 and the interrupt address is IRQ4

➔ **2E8/IRQ3** Serial Port 1 I/O port address is 2E8 and the interrupt address is IRQ3

➔ **Serial Port1 Mode [Normal]**

Use the **Serial Port1 Mode** option to select the transmitting and receiving mode for the first serial port.

➔ **Normal** **DEFAULT** Serial Port 1 mode is normal

➔ **IrDA** Serial Port 1 mode is IrDA

➔ **ASK IR** Serial Port 1 mode is ASK IR

➔ **Serial Port2 Address [2F8/IRQ3]**

Use the **Serial Port2 Address** option to select the Serial Port 2 base address.

➔ **Disabled** No base address is assigned to Serial Port 2

➔ **2F8/IRQ3** **DEFAULT** Serial Port 2 I/O port address is 3F8 and the interrupt address is IRQ3

➔ **3E8/IRQ4** Serial Port 2 I/O port address is 3E8 and the interrupt address is IRQ4

➔ **2E8/IRQ3** Serial Port 2 I/O port address is 2E8 and the interrupt address is IRQ3

➔ **Serial Port2 Mode [Normal]**

Use the **Serial Port2 Mode** option to select the Serial Port2 operational mode.

➔ **Normal** **DEFAULT** Serial Port 2 mode is normal

➔ **IrDA** Serial Port 2 mode is IrDA

➔ **ASK IR** Serial Port 2 mode is ASK IR

➔ **Parallel Port Address [378]**

Use the **Parallel Port Address** option to select the parallel port base address.

➔ **Disabled**		No base address is assigned to the Parallel Port
➔ **378**	**DEFAULT**	Parallel Port I/O port address is 378
➔ **278**		Parallel Port I/O port address is 278
➔ **3BC**		Parallel Port I/O port address is 3BC

➔ **Parallel Port Mode [Normal]**

Use the **Parallel Port Mode** option to select the mode the parallel port operates in.

➔ **Normal**	**DEFAULT**	The normal parallel port mode is the standard mode for parallel port operation.
➔ **EPP**		The parallel port operates in the enhanced parallel port mode (EPP). The EPP mode supports bi-directional communication between the system and the parallel port device and the transmission rates between the two are much faster than the Normal mode.
➔ **ECP**		The parallel port operates in the extended capabilities port (ECP) mode. The ECP mode supports bi-directional communication between the system and the parallel port device and the transmission rates between the two are much faster than the Normal mode.
➔ **ECP+EPP**		The parallel port operates in the extended capabilities port (ECP) mode. The ECP mode supports bi-directional communication between the

system and the parallel port device and the transmission rates between the two are much faster than the Normal mode

The parallel port is also be compatible with EPP devices described above

➔ **Parallel Port IRQ [IRQ7]**

Use the **Parallel Port IRQ** selection to set the parallel port interrupt address.

- ➔ **IRQ5** IRQ5 is assigned as the parallel port interrupt address
- ➔ **IRQ7** **DEFAULT** IRQ7 is assigned as the parallel port interrupt address

➔ **Serial Port3 Address [3E8]**

Use the **Serial Port3 Address** option to select the base addresses for serial port 3

- ➔ **Disabled** No base address is assigned to serial port 3
- ➔ **3E8** **DEFAULT** Serial port 3 I/O port address is 3E8
- ➔ **2E8** Serial port 3 I/O port address is 2E8

➔ **Serial Port3 IRQ [10]**

Use the **Serial Port3 IRQ** option to select the interrupt address for serial port 3.

- ➔ **10** **DEFAULT** Serial port 3 IRQ address is 10

➔ **Serial Port4 Address [2E8]**

Use the **Serial Port4 IRQ** option to select the interrupt address for serial port 4.

- ➔ **Disabled** No base address is assigned to serial port 3
- ➔ **3E8** Serial port 4 I/O port address is 3E8

➔ **2E8** **DEFAULT** Serial port 4 I/O port address is 2E8

➔ **Serial Port4 IRQ [10]**

Use the **Serial Port4 IRQ** option to select the interrupt address for serial port 4.

➔ **10** **DEFAULT** Serial port 4 IRQ address is 10

➔ **Serial Port5 Address [2F0]**

Use the **Serial Port5 IRQ** option to select the interrupt address for serial port 5.

➔ **Disabled** No base address is assigned to serial port 5

➔ **3E8** Serial port 5 I/O port address is 3E8

➔ **2E8** Serial port 5 I/O port address is 2E8

➔ **2F0** **DEFAULT** Serial port 5 I/O port address is 2F0

➔ **2E0** Serial port 5 I/O port address is 2E0

➔ **Serial Port5 IRQ [10]**

Use the **Serial Port5 IRQ** option to select the interrupt address for serial port 5.

➔ **10** **DEFAULT** Serial port 5 IRQ address is 10

➔ **Serial Port6 Address [2E0]**

Use the **Serial Port6 IRQ** option to select the interrupt address for serial port 6.

➔ **Disabled** No base address is assigned to serial port 6

➔ **3E8** Serial port 6 I/O port address is 3E8

➔ **2E8** Serial port 6 I/O port address is 2E8

➔ **2F0** Serial port 6I/O port address is 2F0

➔ **2E0** **DEFAULT** Serial port 6I/O port address is 2E0

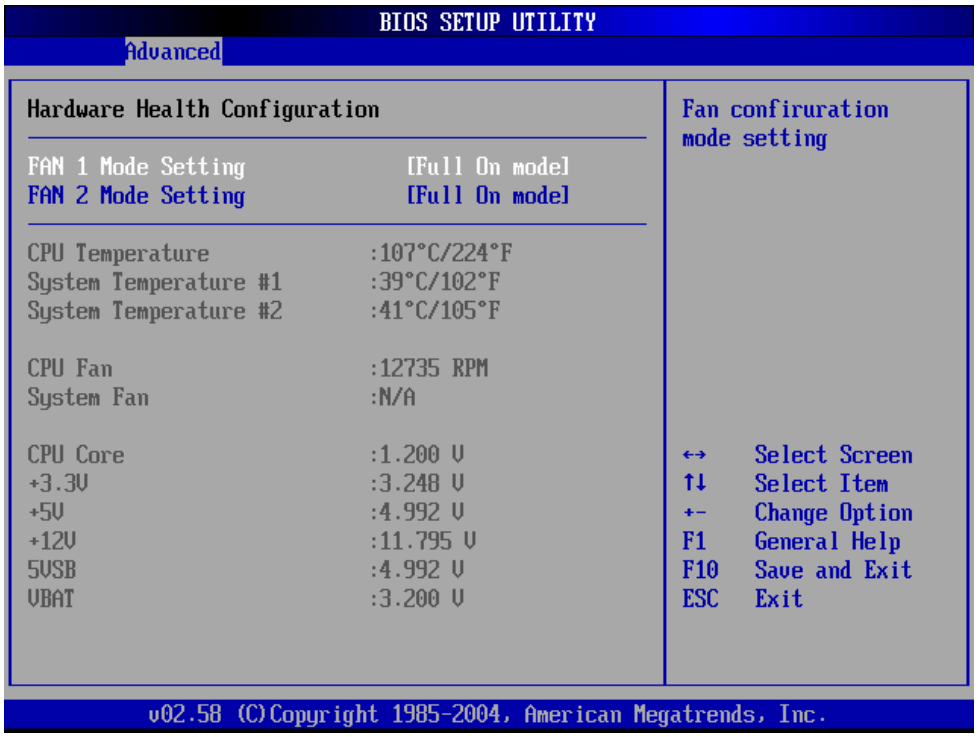
➔ **Serial Port6 IRQ [10]**

Use the **Serial Port6 IRQ** option to select the interrupt address for serial port 6.

➔ **10** **DEFAULT** Serial port 6 IRQ address is 10

5.3.4 Hardware Health Configuration

The **Hardware Health Configuration** menu (**BIOS Menu 7**) shows the operating temperature, fan speeds and system voltages.



BIOS Menu 7: Hardware Health Configuration

➔ **FAN Mode Setting [Full On Mode]**

Use the **FAN Mode Setting** option to configure the second fan.

➔	**Full On Mode**	DEFAULT	Fan is on all the time
➔	**Automatic mode**		Fan is off when the temperature is low enough. Parameters must be set by the user.
➔	**PWM Manual mode**		Pulse width modulation set manually

When the **FAN Mode Setting** option is in the **Automatic Mode**, the following parameters can be set.

- Temp. Limit of OFF
- Temp. Limit of Start
- Temp. Limit of Full
- Fan Start PWM
- Slope PWM 1

When the **CPU FAN Mode Setting** option is in the **PWM Manual Mode**, the following parameters can be set.

- Fan PWM control

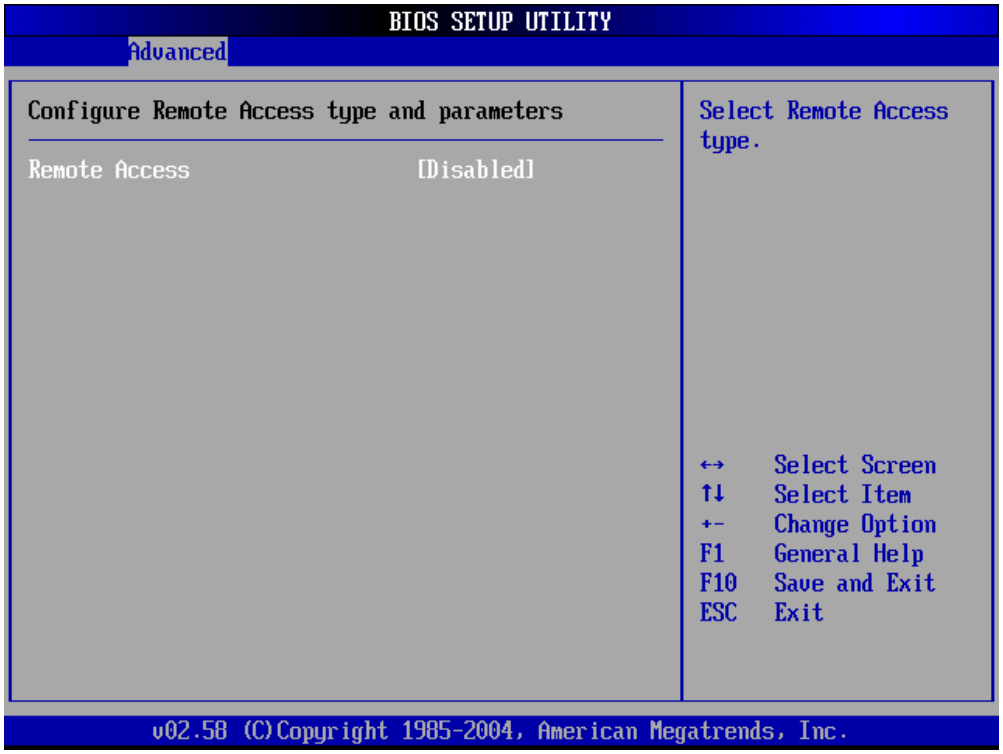
The following system parameters and values are shown. The system parameters that are monitored are:

- System Temperatures: The following system temperatures are monitored
  - CPU Temperature
  - System Temperature #1
  - System Temperature #2
- Fan Speeds: The CPU cooling fan speed is monitored.
  - CPU Fan
  - System Fan
- Voltages: The following system voltages are monitored
  - CPU Core
  - +3.30Vin
  - +5.00Vin

- +12Vin
- 5VSB
- VBAT

5.3.5 Remote Access Configuration

Use the **Remote Access Configuration** menu (**BIOS Menu 8**) to configure remote access parameters. The **Remote Access Configuration** is an AMIBIOS feature and allows a remote host running a terminal program to display and configure the BIOS settings.



BIOS Menu 8: Remote Access Configuration [Advanced]

➔ **Remote Access [Disabled]**

Use the **Remote Access** option to enable or disable access to the remote functionalities of the system.

➔ **Disabled** **DEFAULT** Remote access is disabled.

➔ **Enabled** Remote access configuration options shown below appear:

- ➔ **Serial Port Number**
- ➔ **Serial Port Mode**
- ➔ **Redirection after BIOS POST**
- ➔ **Terminal Type**

These configuration options are discussed below.

➔ **Serial Port Number [COM1]**

Use the **Serial Port Number** option allows to select the serial port used for remote access.

➔ **COM1** **DEFAULT** System is remotely accessed through COM1

➔ **COM2** System is remotely accessed through COM2

NOTE: Make sure the selected COM port is enabled through the Super I/O configuration menu.

➔ **Base Address, IRQ [3F8h, 4]**

The **Base Address, IRQ** option cannot be configured and only shows the interrupt address of the serial port listed above.

➔ **Serial Port Mode [115200 8,n,1]**

Use the **Serial Port Mode** option to select baud rate through which the console redirection is made. The following configuration options are available

- 115200 8,n,1 **DEFAULT**
- 57600 8,n,1
- 38400 8,n,1

- 19200 8,n,1
- 09600 8,n,1

NOTE:

Identical baud rate setting musts be set on the host (a management computer running a terminal software) and the slave

➔ **Redirection After BIOS POST [Always]**

Use the **Redirection After BIOS POST** option to specify when console redirection should occur.

➔ **Disabled**		The console is not redirected after POST
➔ **Boot Loader**		Redirection is active during POST and during Boot Loader
➔ **Always**	**DEFAULT**	Redirection is always active (Some OSes may not work if set to Always)

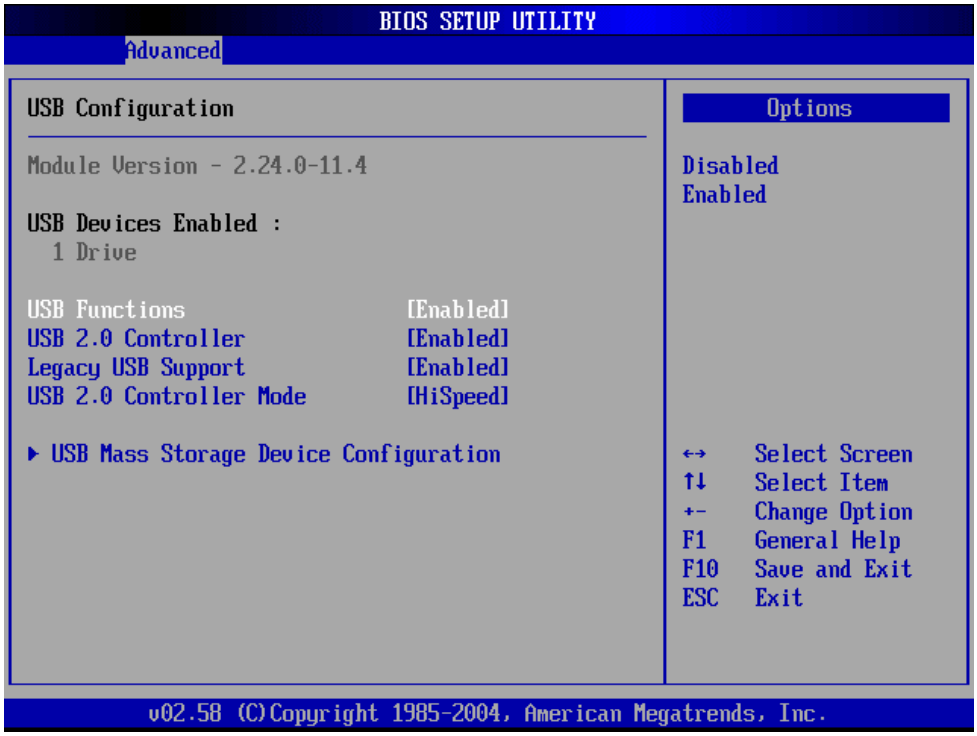
➔ **Terminal Type [ANSI]**

Use the **Terminal Type** BIOS option to specify the remote terminal type.

➔ **ANSI**	**DEFAULT**	The target terminal type is ANSI
➔ **VT100**		The target terminal type is VT100
➔ **VT-UTF8**		The target terminal type is VT-UTF8

5.3.6 USB Configuration

Use the **USB Configuration** menu (**BIOS Menu 9**) to read USB configuration information and configure the USB settings.



BIOS Menu 9: USB Configuration

➔ **USB Configuration**

The **USB Configuration** field shows the system USB configuration. The items listed are:

- Module Version: x.xxxxx.xxxxx

➔ **USB Devices Enabled**

The **USB Devices Enabled** field lists the USB devices that are enabled on the system

➔ **USB Function [Enabled]**

Use the **USB Function** BIOS option to enable or disable USB function support.

➔ **Disabled**		USB function support disabled
➔ **Enabled**	**DEFAULT**	USB function support enabled

➔ **USB 2.0 Controller [Enabled]**

Use the **USB 2.0 Controller** BIOS option to enable or disable the USB 2.0 controller

➔ **Enabled**	**DEFAULT**	USB 2.0 controller enabled
➔ **Disabled**		USB 2.0 controller disabled

➔ **Legacy USB Support [Enabled]**

Use the **Legacy USB Support** BIOS option to enable USB mouse and USB keyboard support.

Normally if this option is not enabled, any attached USB mouse or USB keyboard does not become available until a USB compatible operating system is fully booted with all USB drivers loaded. When this option is enabled, any attached USB mouse or USB keyboard can control the system even when there is no USB driver loaded onto the system.

➔ **Disabled**		Legacy USB support disabled
➔ **Enabled**	**DEFAULT**	Legacy USB support enabled
➔ **Auto**		Legacy USB support disabled if no USB devices are connected

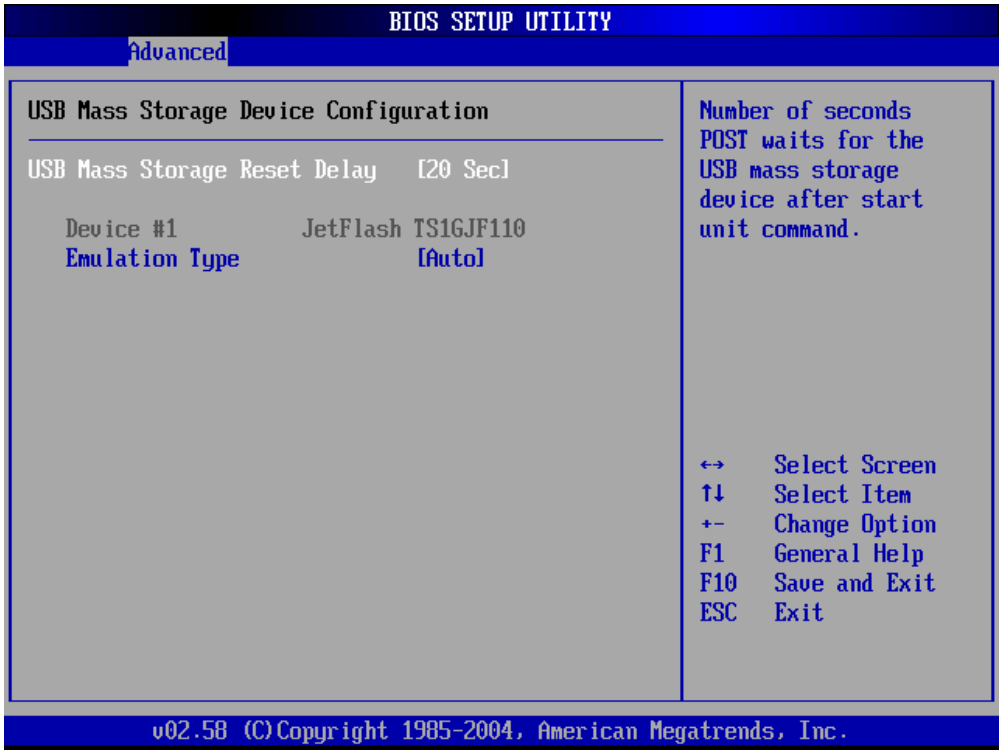
➔ **USB2.0 Controller Mode [HiSpeed]**

Use the **USB2.0 Controller Mode** option to set the speed of the USB2.0 controller.

➔ **FullSpeed**		The controller is capable of operating at 12Mb/s
➔ **HiSpeed**	**DEFAULT**	The controller is capable of operating at 480Mb/s

5.3.6.1 USB Mass Storage Device Configuration

Use the **USB Mass Storage Device Configuration** menu (BIOS Menu 10) to configure USB mass storage class devices.


BIOS SETUP UTILITY
Advanced
USB Mass Storage Device Configuration
USB Mass Storage Reset Delay [20 Sec]
Device #1 JetFlash TS1GJF110
Emulation Type [Auto]
Number of seconds POST waits for the USB mass storage device after start unit command.
↔ Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
v02.58 (C)Copyright 1985-2004, American Megatrends, Inc.

BIOS Menu 10: USB Mass Storage Device Configuration

➔ **USB Mass Storage Reset Delay [20 Sec]**

Use the **USB Mass Storage Reset Delay** option to set the number of seconds POST waits for the USB mass storage device after the start unit command.

➔ **10 Sec**		POST waits 10 seconds for the USB mass storage device after the start unit command.
➔ **20 Sec**	**DEFAULT**	POST waits 20 seconds for the USB mass storage device after the start unit command.
➔ **30 Sec**		POST waits 30 seconds for the USB mass storage device after the start unit command.
➔ **40 Sec**		POST waits 40 seconds for the USB mass storage device after the start unit command.

➔ **Device ##**

The **Device##** field lists the USB devices that are connected to the system.

➔ **Emulation Type [Auto]**

Use the **Emulation Type** BIOS option to specify the type of emulation BIOS has to provide for the USB device.

NOTE:

Please note that the device's formatted type and the emulation type provided by the BIOS must match for a device to boot properly. If both types do not match then device's behavior is undefined. To make sure both types match, format the device using BIOS INT13h calls after selecting the proper emulation option in BIOS setup. The FORMAT utility provided by Microsoft® MS-DOS®, Microsoft® Windows® 95, and Microsoft® Windows® 98 can be used for this purpose.

➔ **Auto**	**DEFAULT**	BIOS auto-detects the current USB.
➔ **Floppy**		The USB device will be emulated as a floppy drive. The device can be either A: or B: responding to INT13h calls that return DL = 0 or DL = 1 respectively.
➔ **Forced FDD**		Allows a hard disk image to be connected as a floppy image. This option works only for drives formatted with FAT12, FAT16 or FAT32.
➔ **Hard Disk**		Allows the USB device to be emulated as hard disk responding to INT13h calls that return DL values of 80h or above.

➔ **CDROM**

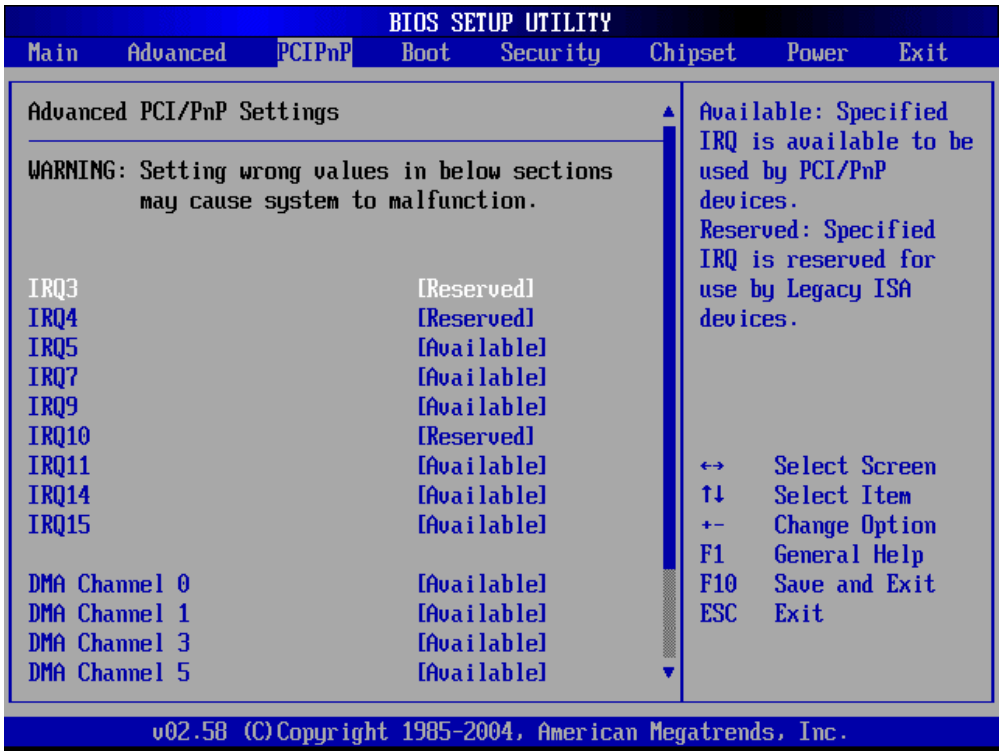
Assumes the CD-ROM is formatted as bootable media. All the devices that support block sizes greater than 512 bytes can only be booted using this option.

5.4 PCI/PnP

Use the **PCI/PnP** menu (BIOS Menu 11) to configure advanced PCI and PnP settings.

WARNING!

Setting wrong values for the BIOS selections in the PCIPnP BIOS menu may cause the system to malfunction.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Power Exit
Advanced PCI/PnP Settings
WARNING: Setting wrong values in below sections may cause system to malfunction.
IRQ3 [Reserved]
IRQ4 [Reserved]
IRQ5 [Available]
IRQ7 [Available]
IRQ9 [Available]
IRQ10 [Reserved]
IRQ11 [Available]
IRQ14 [Available]
IRQ15 [Available]
DMA Channel 0 [Available]
DMA Channel 1 [Available]
DMA Channel 3 [Available]
DMA Channel 5 [Available]
Available: Specified IRQ is available to be used by PCI/PnP devices.
Reserved: Specified IRQ is reserved for use by Legacy ISA devices.
↔ Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
v02.58 (C)Copyright 1985-2004, American Megatrends, Inc.

BIOS Menu 11: PCI/PnP Configuration

➔ **IRQ# [Available]**

Use the **IRQ#** address to specify what IRQs can be assigned to a particular peripheral device.

Available	**DEFAULT**	The specified IRQ is available to be used by PCI/PnP devices
Reserved		The specified IRQ is reserved for use by Legacy ISA devices

Available IRQ addresses are:

- IRQ3
- IRQ4
- IRQ5
- IRQ7
- IRQ9
- IRQ10
- IRQ 11
- IRQ 14
- IRQ 15

➔ **DMA Channel# [Available]**

Use the **DMA Channel#** option to assign a specific DMA channel to a particular PCI/PnP device.

➔ **Available**	**DEFAULT**	The specified DMA is available to be used by PCI/PnP devices
➔ **Reserved**		The specified DMA is reserved for use by Legacy ISA devices

Available DMA Channels are:

- DM Channel 0

- DM Channel 1
- DM Channel 3
- DM Channel 5
- DM Channel 6
- DM Channel 7

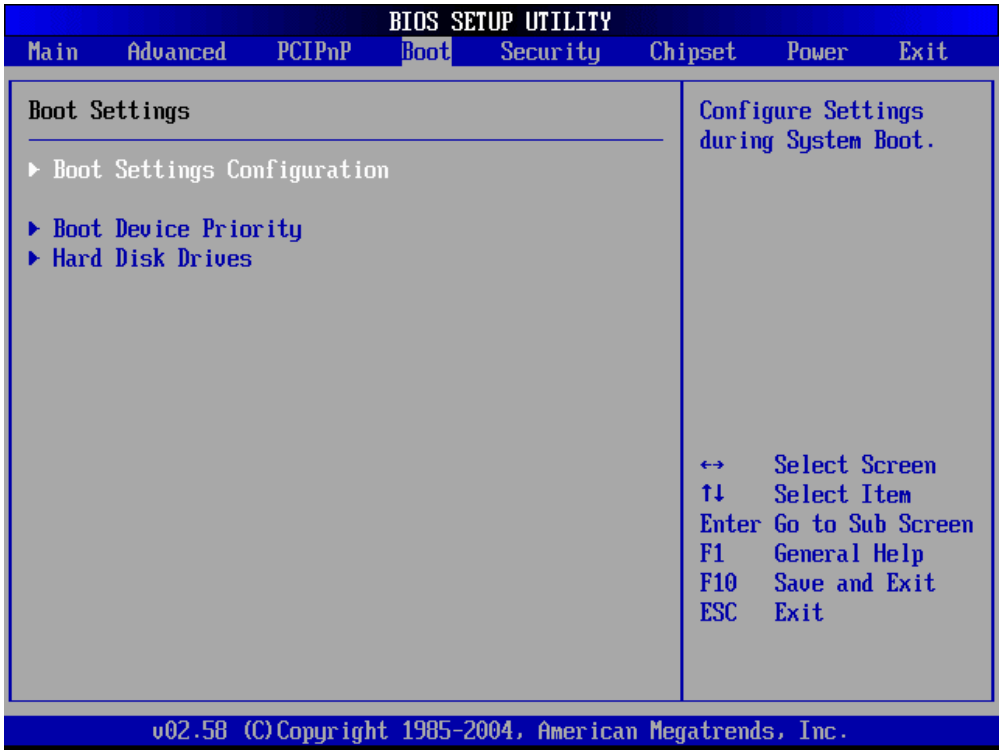
➔ **Reserved Memory Size [Disabled]**

Use the **Reserved Memory Size** BIOS option to specify the amount of memory that should be reserved for legacy ISA devices.

➔	**Disabled**	**DEFAULT**	No memory block reserved for legacy ISA devices
➔	**16K**		16KB reserved for legacy ISA devices
➔	**32K**		32KB reserved for legacy ISA devices
➔	**64K**		54KB reserved for legacy ISA devices

5.5 Boot

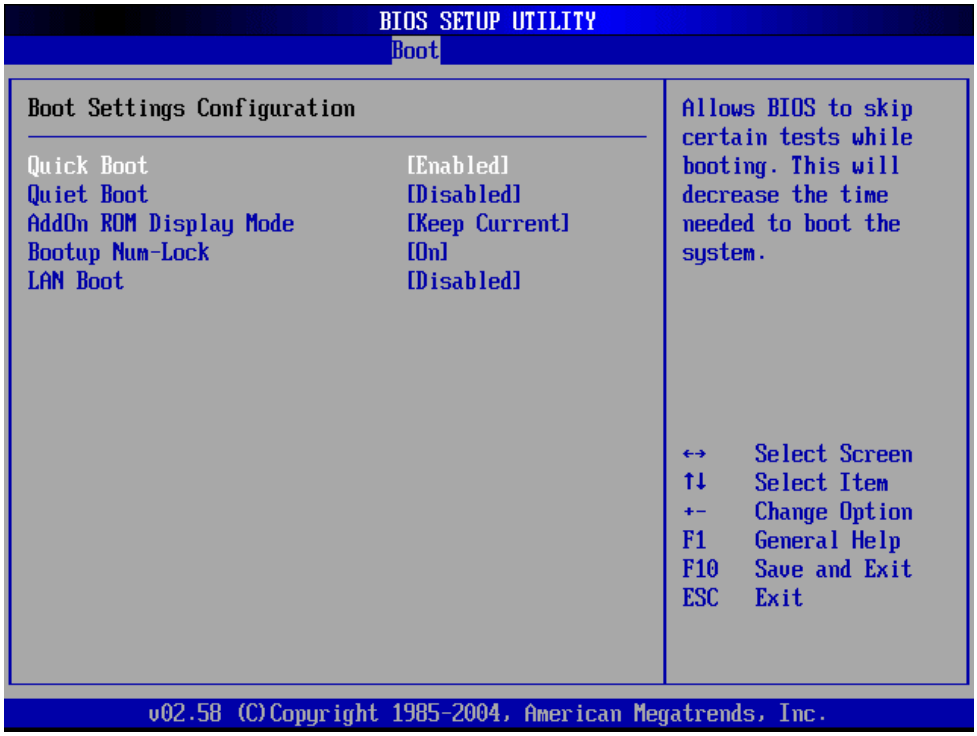
Use the **Boot** menu (**BIOS Menu 12**) to configure system boot options.



BIOS Menu 12: Boot

5.5.1 Boot Settings Configuration

Use the **Boot Settings Configuration** menu (**BIOS Menu 13**) to configure advanced system boot options.


BIOS SETUP UTILITY
Boot
Boot Settings Configuration
Quick Boot [Enabled]
Quiet Boot [Disabled]
AddOn ROM Display Mode [Keep Current]
Bootup Num-Lock [On]
LAN Boot [Disabled]
Allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system.
↔ Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
v02.58 (C)Copyright 1985-2004, American Megatrends, Inc.

BIOS Menu 13: Boot Settings Configuration

➔ **Quick Boot [Enabled]**

Use the **Quick Boot** BIOS option to make the computer speed up the boot process.

➔ **Disabled**		No POST procedures are skipped
➔ **Enabled**	**DEFAULT**	Some POST procedures are skipped to decrease the system boot time

➔ **Quiet Boot [Disabled]**

Use the **Quiet Boot** BIOS option to select the screen display when the system boots.

➔ **Disabled**	**DEFAULT**	Normal POST messages displayed
➔ **Enabled**		OEM Logo displayed instead of POST messages

➔ **AddOn ROM Display Mode [Keep Current]**

Use the **AddOn ROM Display Mode** option to allow add-on ROM (read-only memory) messages to be displayed.

➔ **Force BIOS**		The system forces third party BIOS to display during system boot.
➔ **Keep Current**	**DEFAULT**	The system displays normal information during system boot.

➔ **Bootup Num-Lock [On]**

Use the **Bootup Num-Lock** BIOS option to specify if the number lock setting must be modified during boot up.

➔ **Off**		Does not enable the keyboard Number Lock automatically. To use the 10-keys on the keyboard, press the Number Lock key located on the upper left-hand corner of the 10-key pad. The Number Lock LED on the keyboard lights up when the Number Lock is engaged.
➔ **On**	**DEFAULT**	Allows the Number Lock on the keyboard to be enabled automatically when the computer system boots up. This allows the immediate use of the 10-key numeric keypad located on the right side of the keyboard. To confirm this, the Number Lock LED light on the keyboard is lit.

➔ **LAN Boot [Disabled]**

Use the **LAN Boot** option to enable the system to be booted from a remote system.

➔ **Disabled**	**DEFAULT**	Cannot be booted from a remote system through the LAN

➔ **Enabled** **DEFAULT** Can be booted from a remote system through the LAN

5.5.2 Boot Device Priority

Use the **Boot Device Priority** menu to specify the boot sequence from the available devices. Possible boot devices may include:

- HDD
- 1st FLOPPY DRIVE
- CD/DVD

5.5.3 Hard Disk Drives

Use the **Hard Disk Drives** menu to specify the boot sequence of the available HDDs. When the menu is opened, the HDDs connected to the system are listed as shown below:

- 1st Drive [HDD: PM-(part number)]
- 2nd Drive [HDD: PS-(part number)]

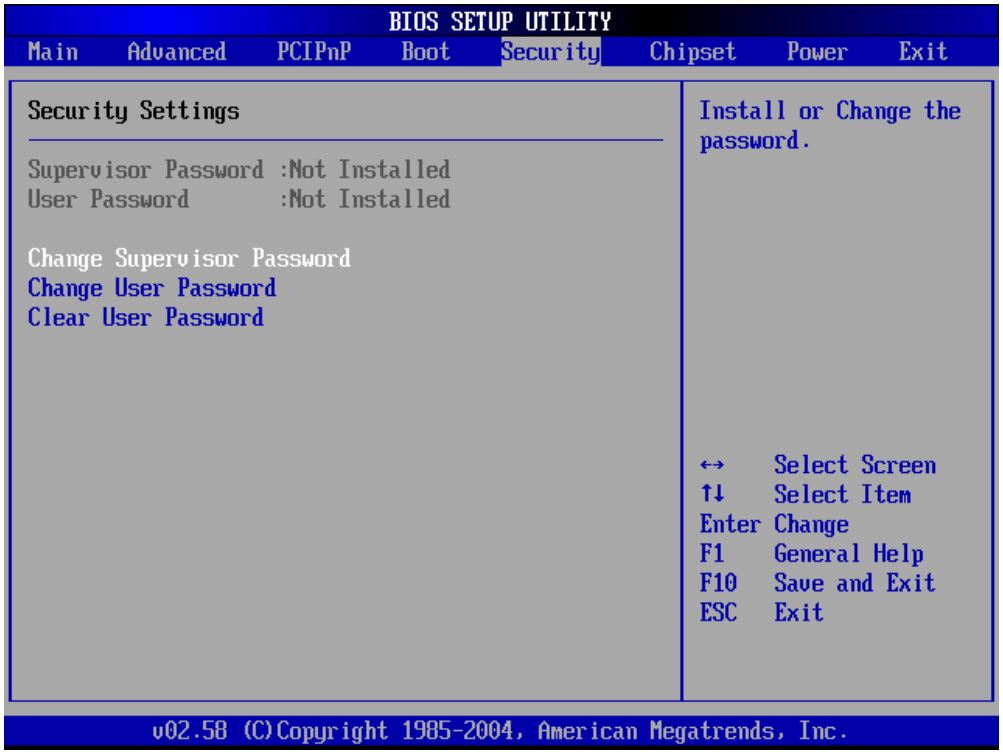
NOTE:

Only the drives connected to the system are shown. For example, if only two HDDs are connected only "**1st Drive**" and "**2nd Drive**" are listed.

The boot sequence from the available devices is selected. If the "**1st Drive**" option is selected a list of available HDDs is shown. Select the first HDD the system boots from. If the "**1st Drive**" is not used for booting this option may be disabled.

5.6 Security

Use the **Security** menu (**BIOS Menu 14**) to set system and user passwords.



BIOS Menu 14: Security

➔ **Change Supervisor Password**

Use the **Change Supervisor Password** to set or change a supervisor password. The default for this option is **Not Installed**. If a supervisor password must be installed, select this field and enter the password. After the password has been added, **Install** appears next to **Change Supervisor Password**.

➔ **Change User Password**

Use the **Change User Password** to set or change a user password. The default for this option is **Not Installed**. If a user password must be installed, select this field and enter the password. After the password has been added, **Install** appears next to **Change User Password**.

➔ **Clear User Password**

Use the **Clear User Password** to clear a user's password. The default for this option is **Not Installed**. If a user password must be cleared, use this option.

5.7 Chipset

Use the **Chipset** menu (**BIOS Menu 15**) to access the Northbridge and Southbridge configuration menus

WARNING!

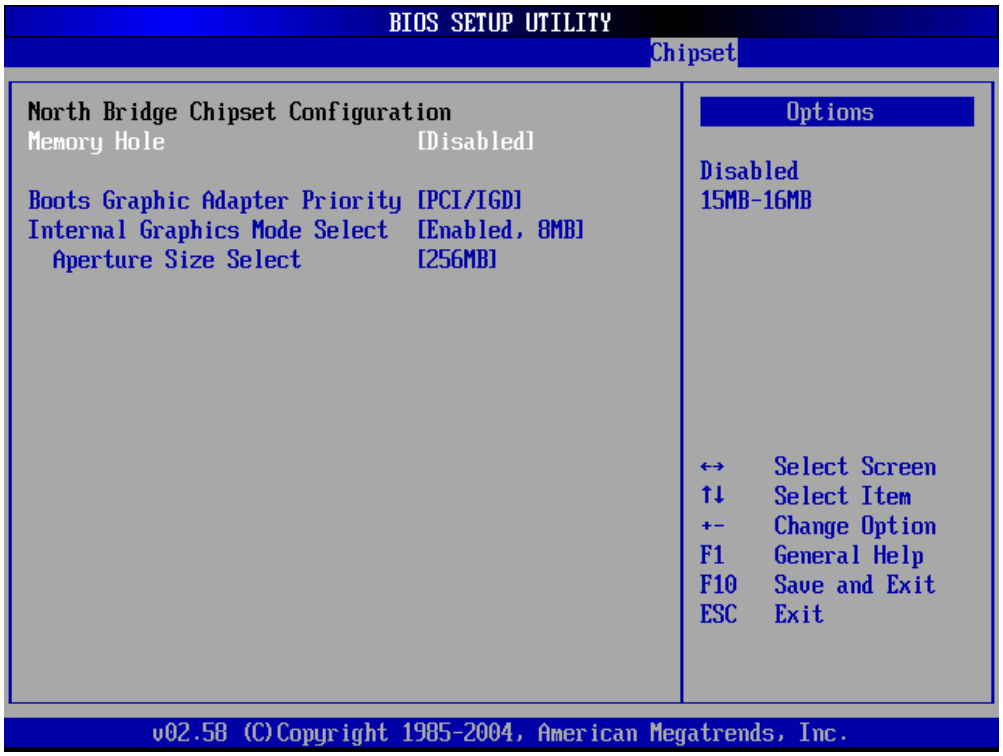
Setting the wrong values for the Chipset BIOS selections in the Chipset BIOS menu may cause the system to malfunction.

BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Power Exit
Advanced Chipset Settings
WARNING: Setting wrong values in below sections may cause system to malfunction.
North Bridge Configuration
South Bridge Configuration
Configure North Bridge features.
↔ Select Screen
↑↓ Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
v02.58 (C)Copyright 1985-2004, American Megatrends, Inc.

BIOS Menu 15: Chipset

5.7.1 NorthBridge Configuration

Use the **Northbridge Chipset Configuration** menu (**BIOS Menu 16**) to configure the Northbridge chipset.



BIOS Menu 16:Northbridge Chipset Configuration

➔ **Memory Hole [Disabled]**

Use the **Memory Hole** option to reserve memory space between 15MB and 16MB for ISA expansion cards that require a specified area of memory to work properly. If an older ISA expansion card is used, please refer to the documentation that came with the card to see if it is necessary to reserve the space.

➔ **Disabled**	**DEFAULT**	Memory is not reserved for ISA expansion cards
➔ **15MB – 16MB**		Between 15MB and 16MB of memory is reserved for ISA expansion cards

➔ **Boots Graphics Adapter Priority [PEG/PCI]**

Use the **Boots Graphics Adapter Priority** option to select the graphics controller used as the primary boot device. Select either an integrated graphics controller (IGD) or a combination of PCI graphics controller, a PCI express (PEG) controller or an IGD. Configuration options are listed below:

- IGD
- PEG/IGD **DEFAULT**

➔ **Internal Graphics Mode Select [Enable, 8MB]**

Use the **Internal Graphic Mode Select** option to specify the amount of system memory that can be used by the Internal graphics device.

➔ **Disable**		
➔ **Enable, 1MB**		1MB of memory used by internal graphics device
➔ **Enable, 8MB**	**DEFAULT**	8MB of memory used by internal graphics device

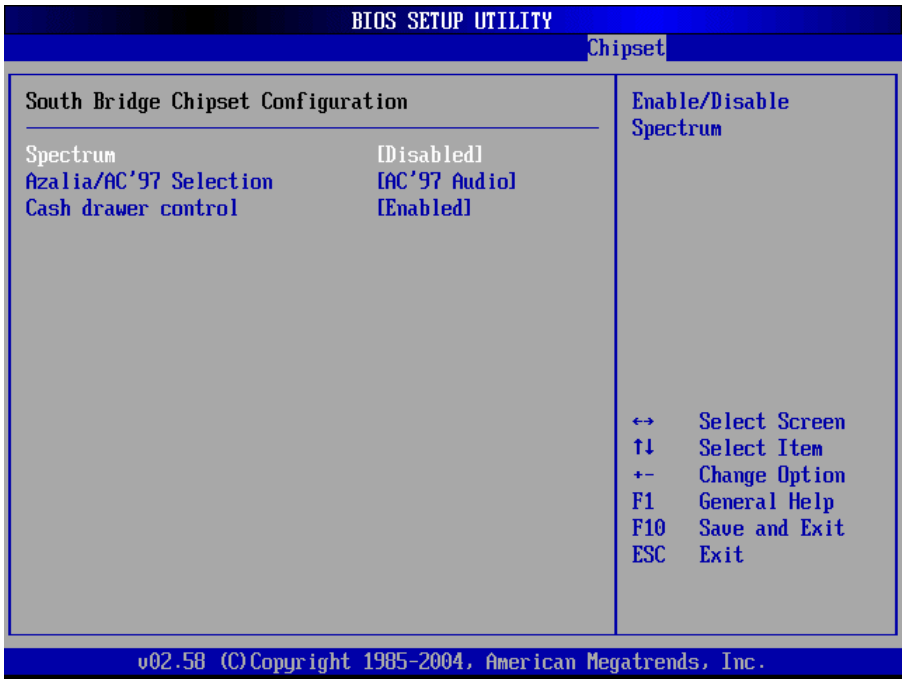
➔ **Aperture Size Select [256MB]**

Use the **Aperture Size Select** option to select the size of the AGP aperture and the size of the GART (Graphics Address Relocation Table). The aperture is a portion on the PCI memory address range dedicated for use as AGP memory address space and the GART is a translation table that translates the AGP memory addresses into actual addresses. The following options are available.

- 256MB **DEFAULT**
- 128MB

5.7.2 Southbridge Configuration

The **Southbridge Configuration** menu (**BIOS Menu 17**) the Southbridge chipset to be configured.



BIOS Menu 17:Southbridge Chipset Configuration

➔ **Spectrum [Disabled]**

Use the **Spectrum** option to reduce the EMI. Excess EMI is generated when the system clock generator pulses have extreme values. Spreading the pulse spectrum modulates changes in the extreme values from spikes to flat curves, thus reducing the EMI. This benefit may in some cases be outweighed by problems with timing-critical devices, such as a clock-sensitive SCSI device.

➔ **Disabled** **DEFAULT** EMI not reduced

➔ **Enabled** EMI reduced

➔ **Azalia/AC97 Selection [Enabled]**

Use the **Azalia/AC97 Selection** option to select Azalia (HD Audio) or AC'97 as the audio codec.

➔ **Auto** The audio codec automatically detected and enabled

➔ **Azalia** The Azalia (HD Audio) is enabled

➔ **AC'97 Audio** **DEFAULT** The onboard AC'97 automatically detected and enabled

➔ **Disabled** The onboard audio controller is disabled

➔ **Cash drawer control [Enabled]**

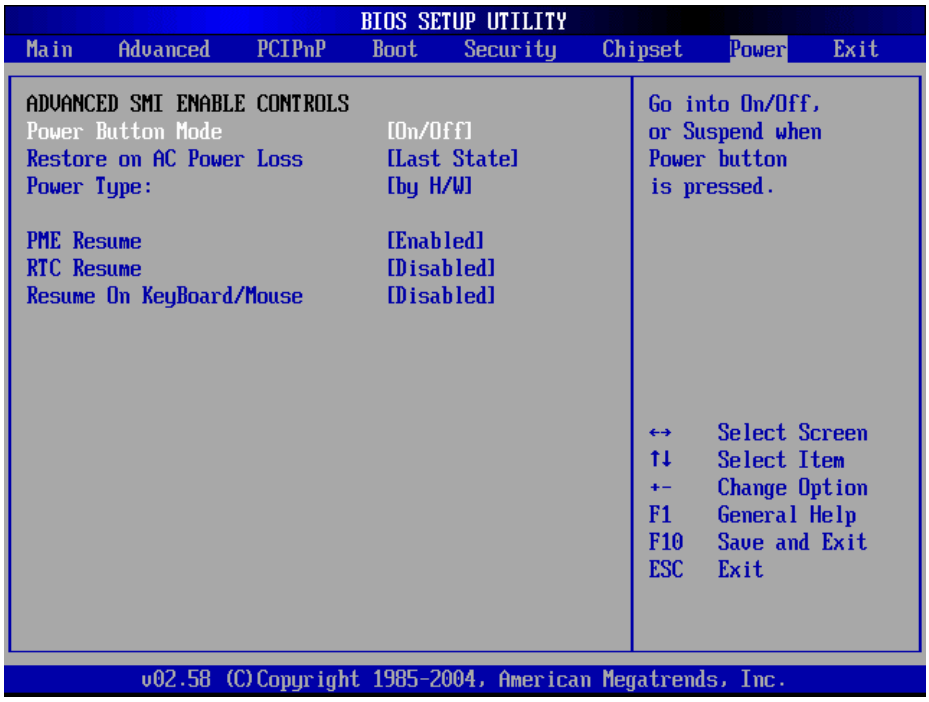
Use the **Cash drawer control** option to enable or disable the control of cash drawer connected to the RJ-12 connectors.

➔ **Disabled** The Cash drawer control is disabled

➔ **Enabled** **DEFAULT** The Cash drawer control is enabled

5.8 Power

The **Power** menu (**BIOS Menu 18**) allows the advanced power management options to be configured.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Power Exit
ADVANCED SMI ENABLE CONTROLS
Power Button Mode [On/Off]
Restore on AC Power Loss [Last State]
Power Type: [by H/W]
PME Resume [Enabled]
RTC Resume [Disabled]
Resume On KeyBoard/Mouse [Disabled]
Go into On/Off, or Suspend when Power button is pressed.
↔ Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
v02.58 (C)Copyright 1985-2004, American Megatrends, Inc.

BIOS Menu 18:Power

➔ **Power Button Mode [On/Off]**

Use the **Power Button Mode** BIOS to specify how the power button functions.

➔ **On/Off**	**DEFAULT**	When the power button is pressed the system is either turned on or off
➔ **Suspend**		When the power button is pressed the system goes into suspend mode

➔ **Restore on AC Power Loss [Last State]**

Use the **Restore on AC Power Loss** BIOS option to specify what state the system returns to if there is a sudden loss of power to the system.

➔ **Power Off**		The system remains turned off
➔ **Power On**		The system turns on
➔ **Last State**	**DEFAULT**	The system returns to its previous state. If it was on, it turns itself on. If it was off, it remains off.

➔ **Power Type [by H/W]**

Use the **Power Type** BIOS option to select the power supply that is connected to the system.

➔ **AT**		An AT power supply is connected to the system
➔ **ATX**		An ATX power supply is connected to the system
➔ **By H/W**	**DEFAULT**	The power type is selected by the jumper on the motherboard

➔ **PME Resume on [Enabled]**

Use the **Resume on PME** BIOS option to enable activity on the PCI PME (power management event) controller to rouse the system from a suspend or standby state.

➔ **Disabled** **DEFAULT** Wake event not generated by PCI PME controller activity

➔ **Enabled** Wake event generated by PCI PME controller activity

➔ **RTC Resume [Disabled]**

Use the **RTC Resume** option to specify the time the system should be roused from a suspended state.

➔ **Disabled** **DEFAULT** The real time clock (RTC) cannot generate a wake event

➔ **Enabled** If selected, the following appears with values that can be selected:

- ➔ **RTC Alarm Date (Days)**
- ➔ **System Time**

After setting the alarm, the computer turns itself on from a suspend state when the alarm goes off.

➔ **Resume on Keyboard/Mouse [Disabled]**

The **Resume on Keyboard/Mouse** BIOS option specifies if the system is roused from a suspended or standby state when there is activity on the PS/2 mouse.

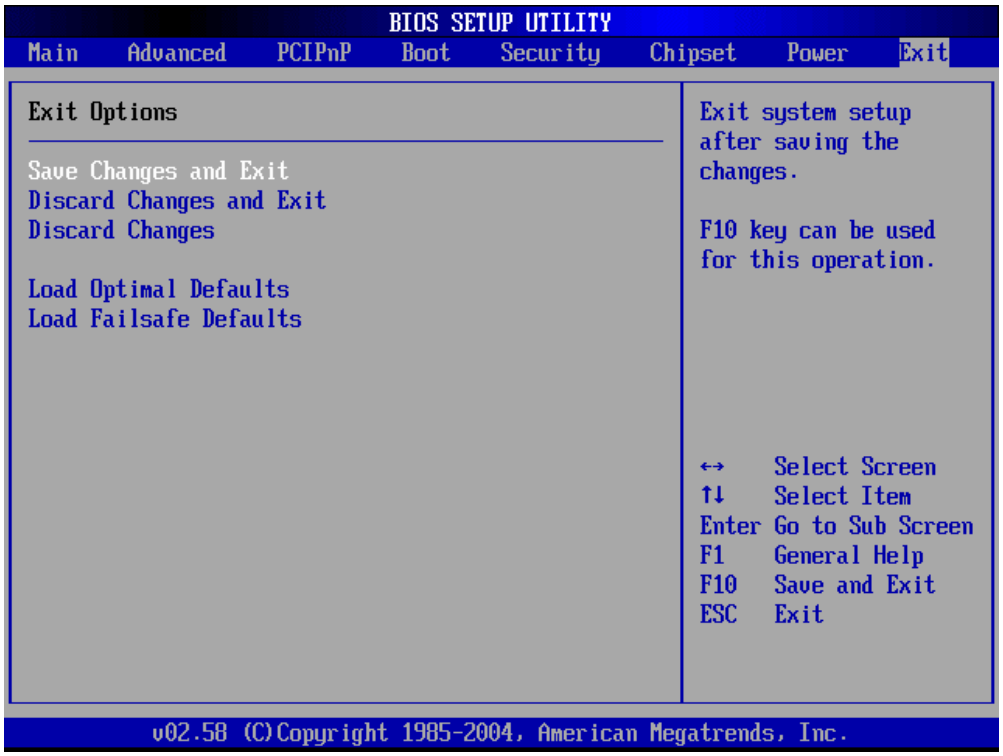
➔ **Disabled** **DEFAULT** PS/2 keyboard/mouse activity cannot rouse the system from a suspend stated.

➔ **S3** PS/2 keyboard/mouse activity rouses the system from an S3 Sleep state

➔ **S3/S4/S5** PS/2 keyboard/mouse activity rouses the system from an S3, S4 or S5 Sleep state

5.9 Exit

Use the **Exit** menu (**BIOS Menu 19**) to load default BIOS values, optimal failsafe values and to save configuration changes.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Power Exit
Exit Options
Save Changes and Exit
Discard Changes and Exit
Discard Changes
Load Optimal Defaults
Load Failsafe Defaults
Exit system setup after saving the changes.
F10 key can be used for this operation.
↔ Select Screen
↑↓ Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
v02.58 (C)Copyright 1985-2004, American Megatrends, Inc.

BIOS Menu 19:Exit

➔ **Save Changes and Exit**

Use the **Save Changes and Exit** option to save the changes made to the BIOS options and to exit the BIOS configuration setup program.

➔ **Discard Changes and Exit**

Use the **Discard Changes and Exit** option to exit the BIOS configuration setup program without saving the changes made to the system.

➔ **Discard Changes**

Use the **Discard Changes** option to discard the changes and remain in the BIOS configuration setup program.

➔ **Load Optimal Defaults**

Use the **Load Optimal Defaults** option to load the optimal default values for each of the parameters on the Setup menus. **F9 key can be used for this operation.**

➔ **Load Failsafe Defaults**

Use the **Load Failsafe Defaults** option to load failsafe default values for each of the parameters on the Setup menus. **F8 key can be used for this operation.**

Chapter

6

Driver Installation

6.1 Available Software Drivers

NOTE:

The content of the CD may vary throughout the life cycle of the product and is subject to change without prior notice. Visit the IEI website or contact technical support for the latest updates.

The following drivers can be installed on the system:

- Audio driver (Realtek AC'97 Audio Driver)
- VGA driver (Intel® Graphics Media Accelerator Driver)
- LAN driver (Broadcom LAN Driver (for GbE LAN))
- Wireless LAN driver (Atheros Wireless LAN Driver)

Installation instructions are given below.

6.2 Driver CD

All the drivers for the IBX-700 are on the CD that came with the system. To install the drivers, please follow the steps below.

Step 1: Insert the CD into a CD drive connected to the system. Locate the CD drive directory.

Step 2: A window with a list of available drivers appears (**Figure 6-1**).

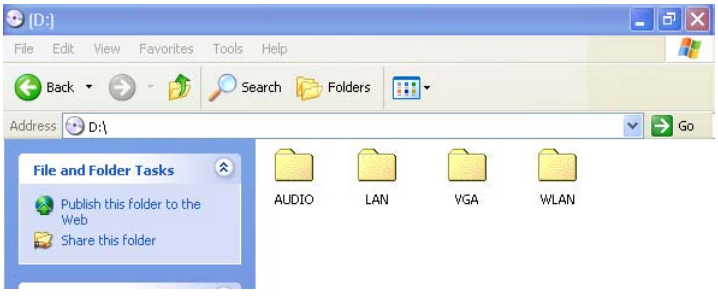


Figure 6-1: Available Drivers

Step 3: Select the driver to install from the list in Figure 6-1. Detailed driver installation instructions follow below.

6.3 Realtek AC`97 Audio Driver Installation

To install the Realtek AC'97 Audio driver, please follow the steps below.

6.3.1 BIOS Setup

Step 1: Enter the BIOS setup. To do this, reboot the system and press **DEL** during POST.

Step 2: Go to the Southbridge Configuration menu. Make sure the **Azalia/AC97 Selection** option is set to [AC'97 Audio].

Step 3: Press **F10** to save the changes and exit the BIOS setup. The system reboots.

6.3.2 Driver Installation

To install the audio driver please follow the steps below.

Step 1: Select **AUDIO** from the list in Figure 6-1 and locate the **X :\AUDIO\WDM_A403** directory, where "**X:\"** is the system CD drive.

Step 2: A new window opens (**Figure 6-2**). Double-click the **setup.exe** icon to continue the installation process.

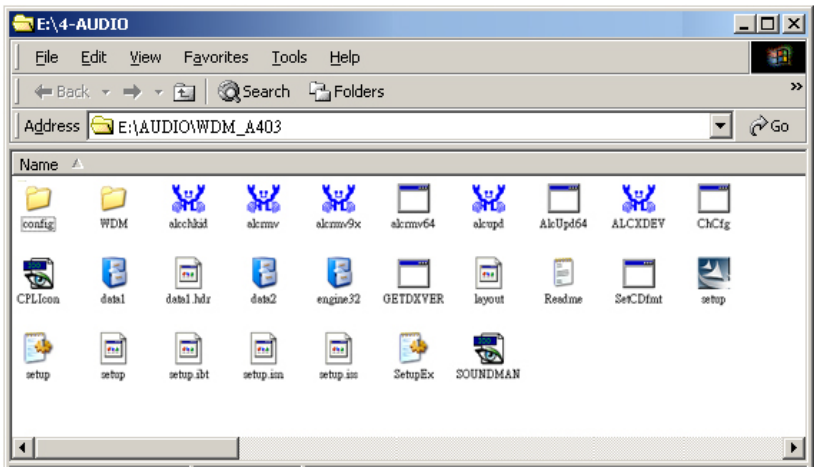


Figure 6-2: Locate the Setup Program Icon

Step 3: The **InstallShield Wizard** is prepared to guide the user through the rest of the process (**Figure 6-3**).

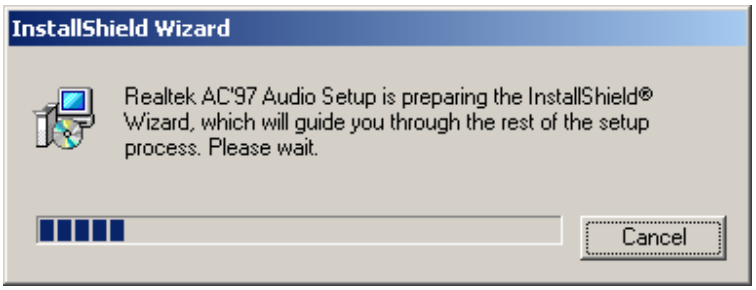

InstallShield Wizard
Realtek AC'97 Audio Setup is preparing the InstallShield® Wizard, which will guide you through the rest of the setup process. Please wait.
Cancel

Figure 6-3: Preparing Setup Screen

Step 4: Once initialized, the **InstallShield Wizard** welcome screen appears (**Figure 6-4**).

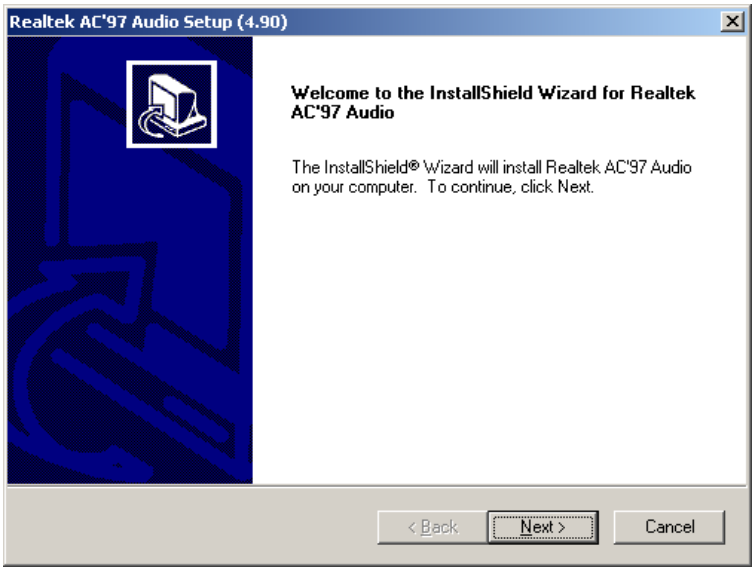

Realtek AC'97 Audio Setup (4.90)
Welcome to the InstallShield Wizard for Realtek AC'97 Audio
The InstallShield® Wizard will install Realtek AC'97 Audio on your computer. To continue, click Next.
< Back
Next >
Cancel

Figure 6-4: InstallShield Wizard Welcome Screen

Step 5: Click **NEXT** to continue the installation.

Step 6: InstallShield starts to install the new software as shown in **Figure 6-5**.

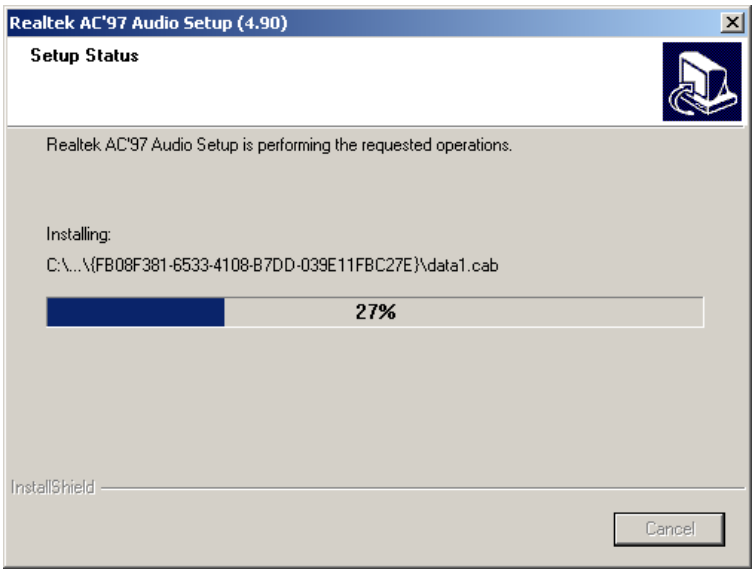


Figure 6-5: Audio Driver Software Configuration

Step 7: At this stage the **Digital Signal Not Found** screen shown in **Figure 6-6** appears.

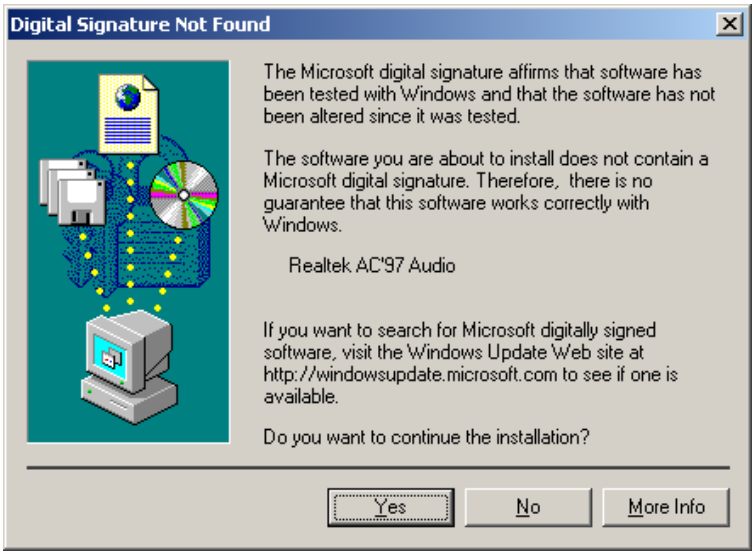

Digital Signature Not Found
The Microsoft digital signature affirms that software has been tested with Windows and that the software has not been altered since it was tested.
The software you are about to install does not contain a Microsoft digital signature. Therefore, there is no guarantee that this software works correctly with Windows.
Realtek AC'97 Audio
If you want to search for Microsoft digitally signed software, visit the Windows Update Web site at http://windowsupdate.microsoft.com to see if one is available.
Do you want to continue the installation?
Yes
No
More Info

Figure 6-6: Audio Driver Digital Signal

Step 8: Click **YES** and the driver installation begins (**Figure 6-7**).

Figure 6-7: Audio Driver Installation

Step 9: After the driver installation process is complete, a confirmation screen appears (**Figure 6-8**).

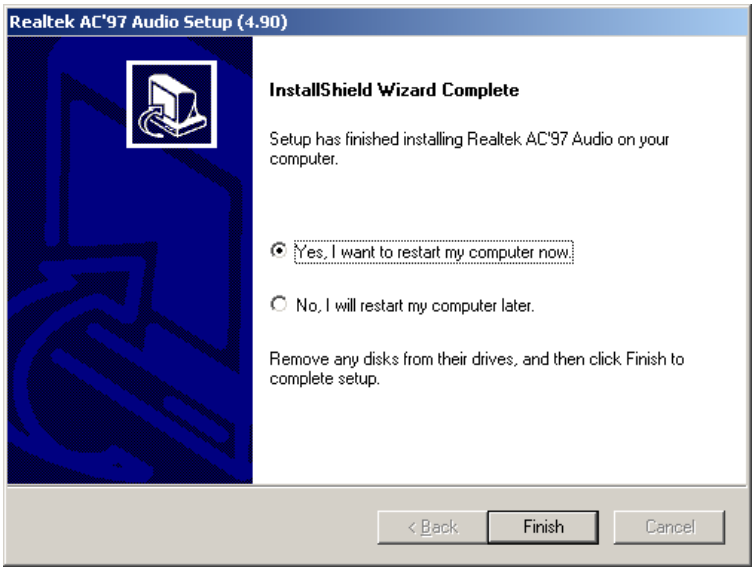

Realtek AC'97 Audio Setup (4.90)
InstallShield Wizard Complete
Setup has finished installing Realtek AC'97 Audio on your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
< Back
Finish
Cancel

Figure 6-8: Restart the Computer

Step 10: The confirmation screen offers the option of restarting the computer now or later. For the settings to take effect, the computer must be restarted. Click **FINISH** to restart the computer.

6.4 Intel® Graphics Media Accelerator Driver Installation

To install the VGA driver, please follow the steps below.

Step 1: Select the **VGA** driver from the list in **Figure 6-1**.

Step 2: A new window opens (**Figure 6-9**).

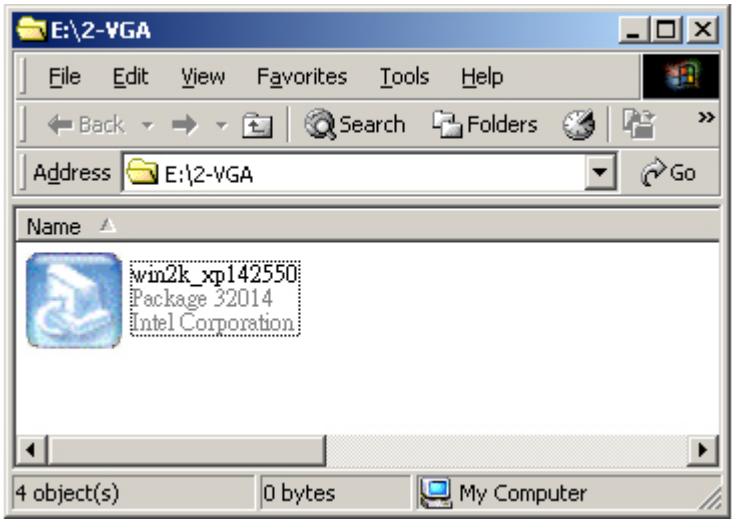


Figure 6-9: VGA Driver

Step 3: Double-click the installation program icon to continue the installation process.

Step 4: The Readme information file shown in **Figure 6-10** appears.

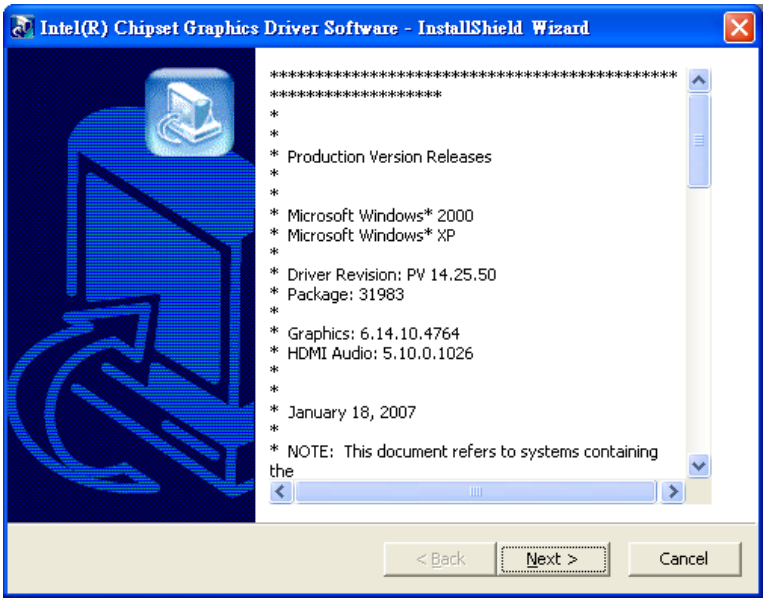

Intel(R) Chipset Graphics Driver Software - InstallShield Wizard
****
* Production Version Releases
* Microsoft Windows* 2000
* Microsoft Windows* XP
* Driver Revision: PV 14.25.50
* Package: 31983
* Graphics: 6.14.10.4764
* HDMI Audio: 5.10.0.1026
* January 18, 2007
* NOTE: This document refers to systems containing the
< Back
Next >
Cancel

Figure 6-10: Intel® Graphics Media Accelerator InstallShield Wizard

Step 5: Read the Readme file information and click **NEXT** to begin extracting files (**Figure 6-11**).

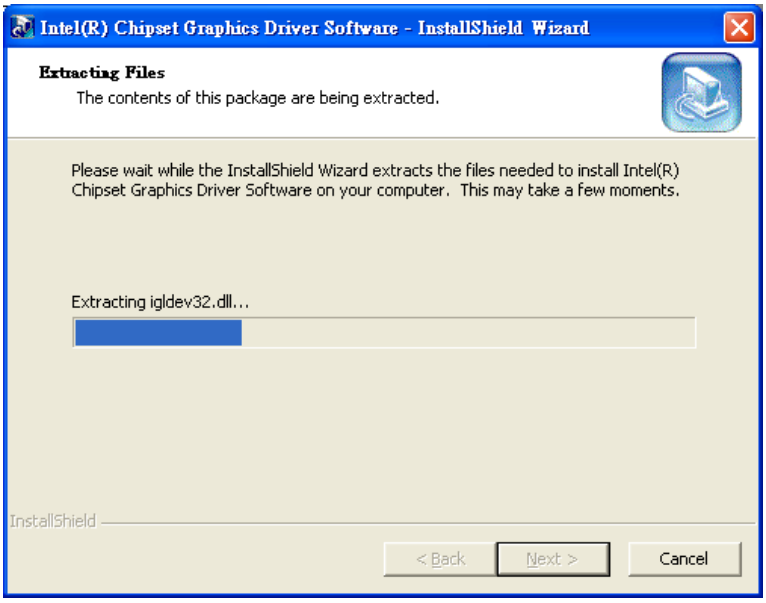

Intel(R) Chipset Graphics Driver Software - InstallShield Wizard
Extracting Files
The contents of this package are being extracted.
Please wait while the InstallShield Wizard extracts the files needed to install Intel(R) Chipset Graphics Driver Software on your computer. This may take a few moments.
Extracting igldev32.dll...
InstallShield
< Back
Next >
Cancel

Figure 6-11: InstallShield Wizard Extracting Files

Step 6: The Graphics Media Accelerator Driver Welcome screen appears (**Figure 6-12**).

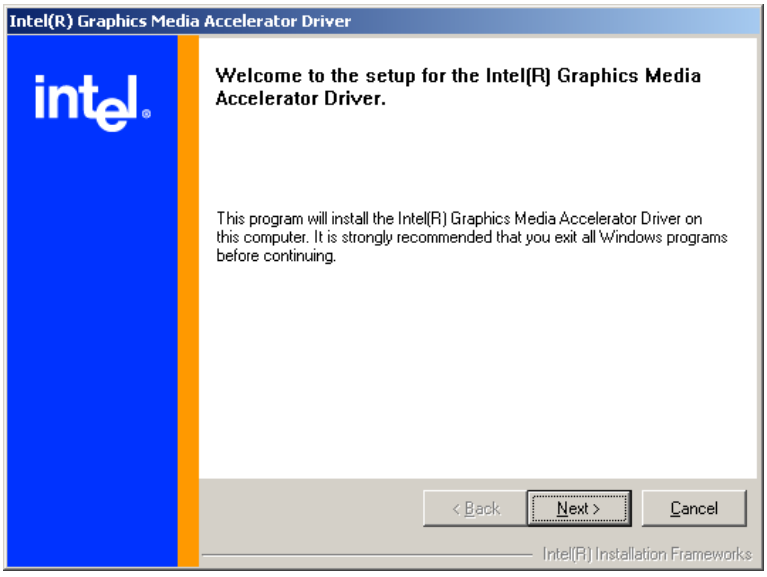

Intel(R) Graphics Media Accelerator Driver
intel
Welcome to the setup for the Intel(R) Graphics Media Accelerator Driver.
This program will install the Intel(R) Graphics Media Accelerator Driver on this computer. It is strongly recommended that you exit all Windows programs before continuing.
< Back
Next >
Cancel
Intel(R) Installation Frameworks

Figure 6-12: Intel® Graphics Media Accelerator Driver Welcome Screen

Step 7: Click **NEXT** and a license agreement appears (**Figure 6-13**).

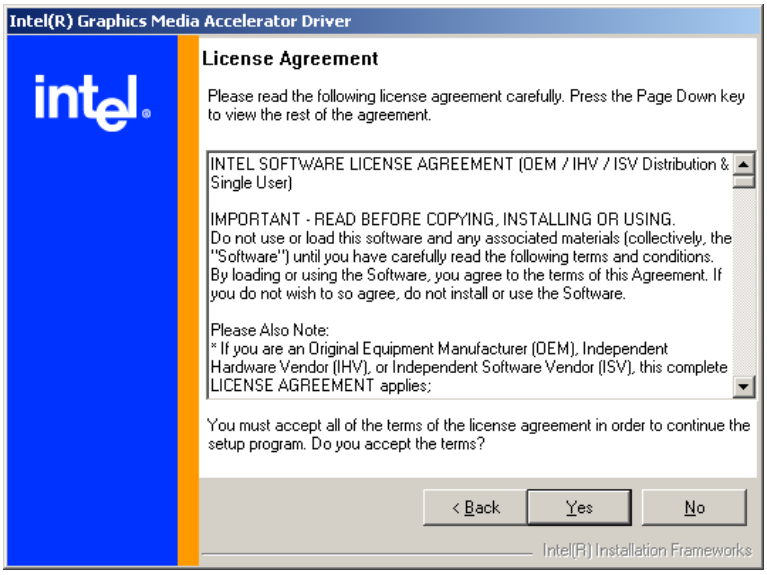

Intel(R) Graphics Media Accelerator Driver
intel
License Agreement
Please read the following license agreement carefully. Press the Page Down key to view the rest of the agreement.
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING.
Do not use or load this software and any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not install or use the Software.
Please Also Note:
* If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies;
You must accept all of the terms of the license agreement in order to continue the setup program. Do you accept the terms?
< Back
Yes
No
Intel(R) Installation Frameworks

Figure 6-13: Intel® Graphics Media Accelerator Driver License Agreement

Step 8: Read the license agreement. To accept the terms and conditions stipulated in the license agreement shown, click **YES** and the installation notice appears (**Figure 6-14**) as the driver is installed.

Figure 6-14: Intel® Graphics Media Accelerator Driver Installing Notice

Step 9: After the driver installation process is complete, a confirmation screen appears (**Figure 6-15**).

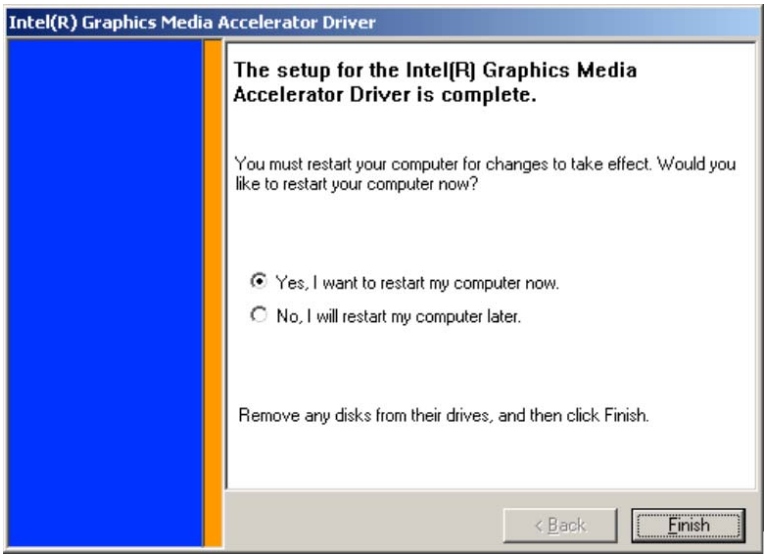

Intel(R) Graphics Media Accelerator Driver
The setup for the Intel(R) Graphics Media Accelerator Driver is complete.
You must restart your computer for changes to take effect. Would you like to restart your computer now?
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish.
< Back
Finish

Figure 6-15: Intel® Graphics Media Accelerator Installation Complete

Step 10: The confirmation screen offers the option of restarting the computer now or later. For the settings to take effect, the computer must be restarted. Click **FINISH** to restart the computer.

6.5 Broadcom LAN Driver (for GbE LAN) Installation

To install the Broadcom LAN driver, please follow the steps below.

Step 1: Open Windows Control Panel (**Figure 6-16**).

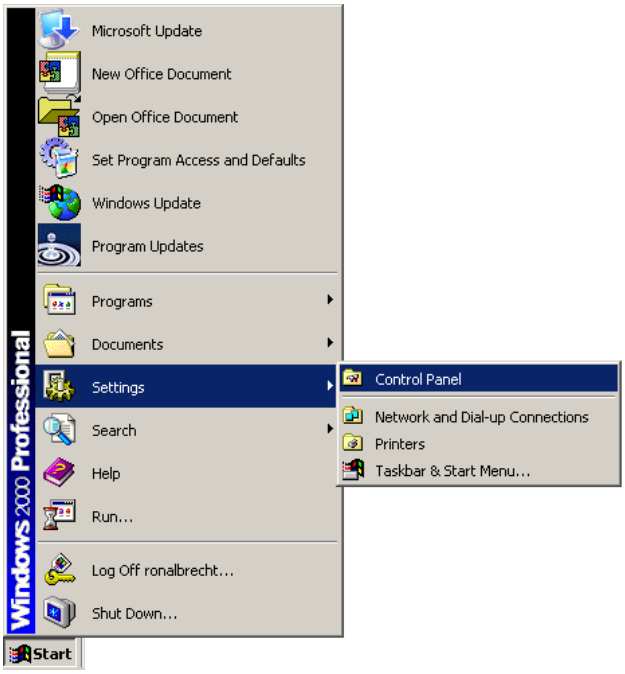


Figure 6-16: Windows Control Panel

Step 2: Double-click the System icon (**Figure 6-17**).

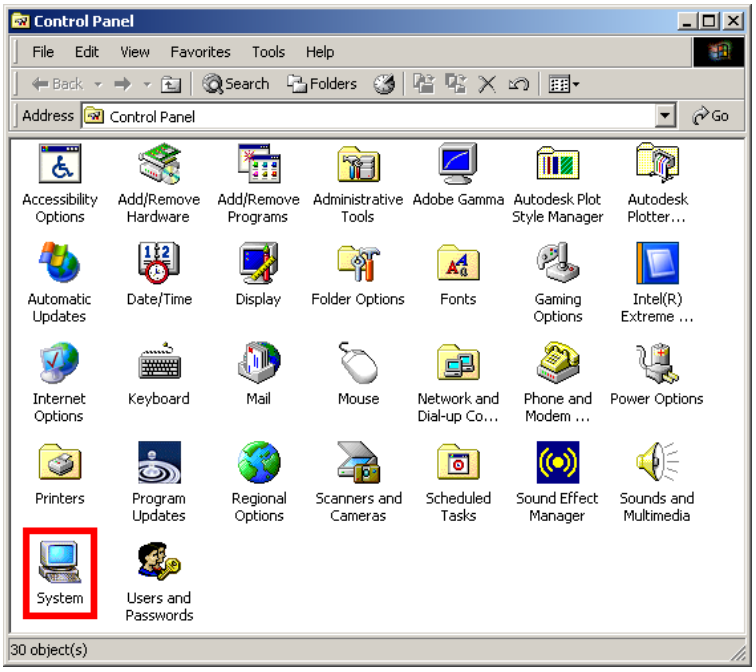


Figure 6-17: System Icon

Step 3: Click the Device Manager tab (**Figure 6-18**).

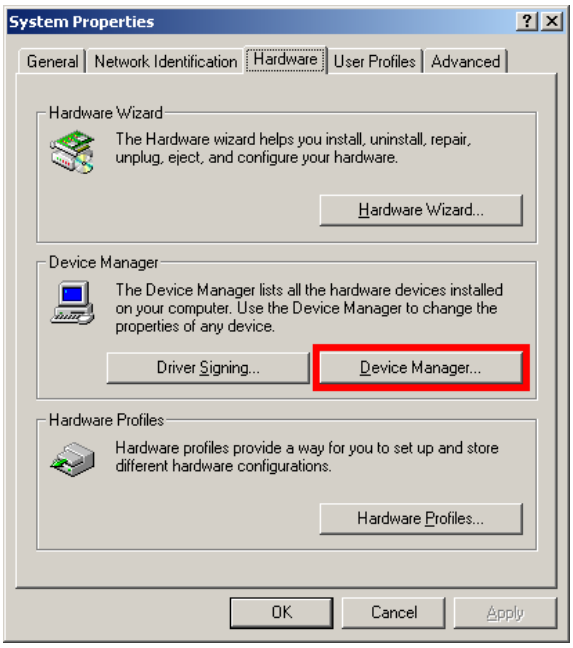

System Properties
General
Network Identification
Hardware
User Profiles
Advanced
Hardware Wizard
The Hardware wizard helps you install, uninstall, repair, unplug, eject, and configure your hardware.
Hardware Wizard...
Device Manager
The Device Manager lists all the hardware devices installed on your computer. Use the Device Manager to change the properties of any device.
Driver Signing...
Device Manager...
Hardware Profiles
Hardware profiles provide a way for you to set up and store different hardware configurations.
Hardware Profiles...
OK
Cancel
Apply

Figure 6-18: Device Manager Tab

Step 4: A list of system hardware devices appears (**Figure 6-19**).

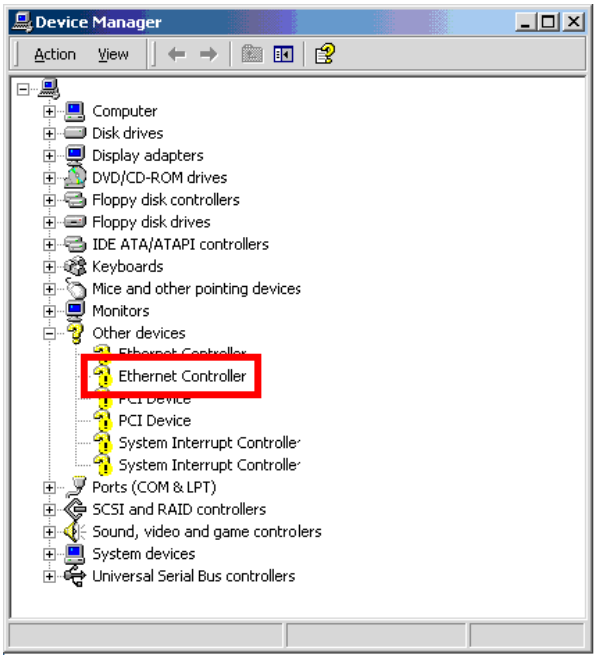


Figure 6-19: Device Manager List

Step 5: Double-click the listed device that has question marks next to it (this means

Windows does not recognize the device).

Step 6: The Device Driver Wizard appears (**Figure 6-20**).

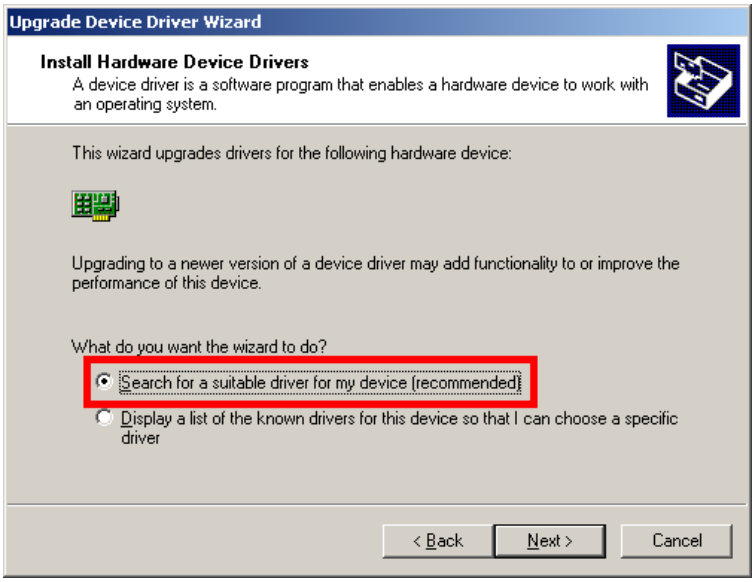

Upgrade Device Driver Wizard
Install Hardware Device Drivers
A device driver is a software program that enables a hardware device to work with an operating system.
This wizard upgrades drivers for the following hardware device:
Upgrading to a newer version of a device driver may add functionality to or improve the performance of this device.
What do you want the wizard to do?
Search for a suitable driver for my device (recommended)
Display a list of the known drivers for this device so that I can choose a specific driver
< Back
Next >
Cancel

Figure 6-20: Search for Suitable Driver

Step 7: Select "Search for a suitable driver for my device (recommended)," and click **NEXT** to continue.

Step 8: Select "Specify a Location" in the Locate Driver Files window (**Figure 6-21**).

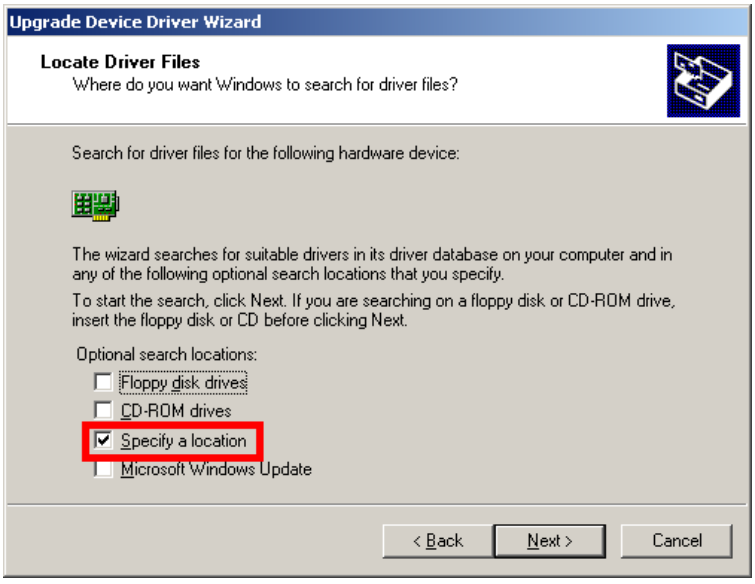

Upgrade Device Driver Wizard
Locate Driver Files
Where do you want Windows to search for driver files?
Search for driver files for the following hardware device:
The wizard searches for suitable drivers in its driver database on your computer and in any of the following optional search locations that you specify.
To start the search, click Next. If you are searching on a floppy disk or CD-ROM drive, insert the floppy disk or CD before clicking Next.
Optional search locations:
Floppy disk drives
CD-ROM drives
Specify a location
Microsoft Windows Update
< Back
Next >
Cancel

Figure 6-21: Locate Driver Files

Step 9: Click **NEXT** to continue.

Step 10: The Locate File window appears (**Figure 6-22**).

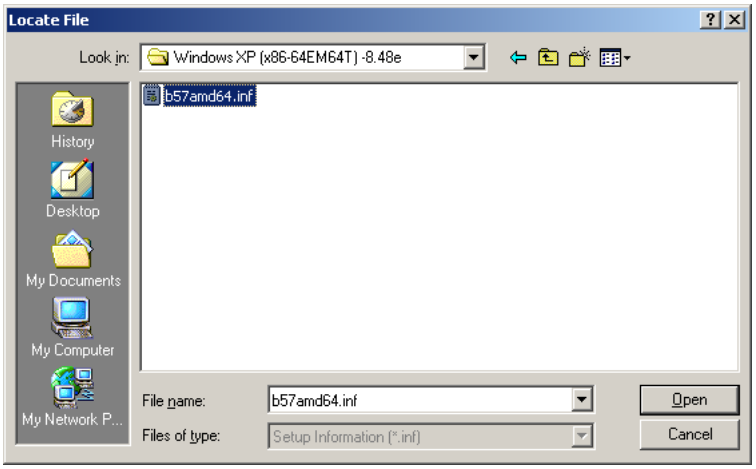


Figure 6-22: Location Browsing Window

Step 11: Select the proper OS folder under the "**X:\3-LAN\BROADCOM BCM57xx Drivers**" directory in the **Locate File** window, where "**X:\"** is the system CD drive.

Step 12: Click **OPEN** and the driver is installed.

6.6 Atheros Wireless LAN Driver Installation

To install the Atheros wireless LAN driver, please follow the steps below.

Step 1: Select the WLAN driver from the list in **Figure 6-1** and locate the **X:\WLAN\azurewave_GE780_xp_driver\D5.3.0.45_WHQL\AW-GE780_D5.3.0.45_WHQL\Install_CD** directory, where "**X:\"** is the system CD drive.

Step 2: The Atheros Client Installation Program screen appears. See **Figure 6-23**.

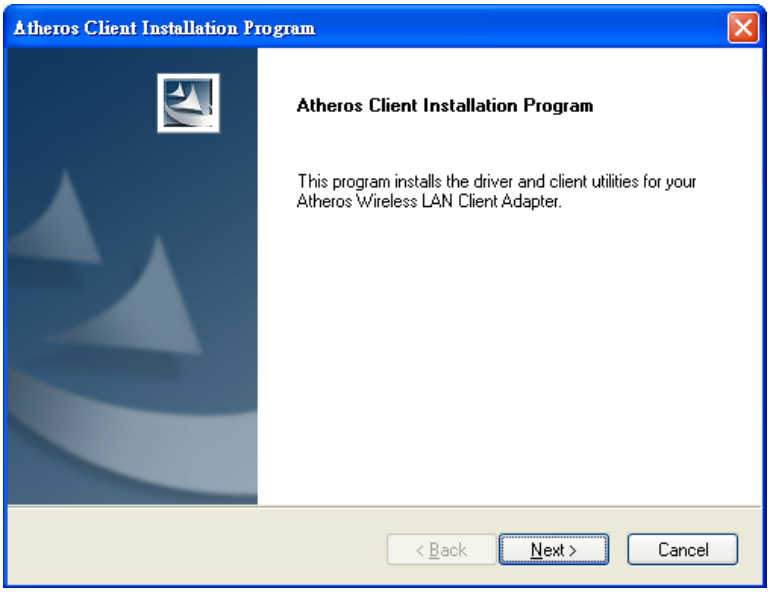

Atheros Client Installation Program
Atheros Client Installation Program
This program installs the driver and client utilities for your Atheros Wireless LAN Client Adapter.
< Back
Next >
Cancel

Figure 6-23: Atheros Client Installation Program Screen

Step 3: Click **NEXT** to continue.

Step 4: The License agreement in **Figure 6-24** appears.

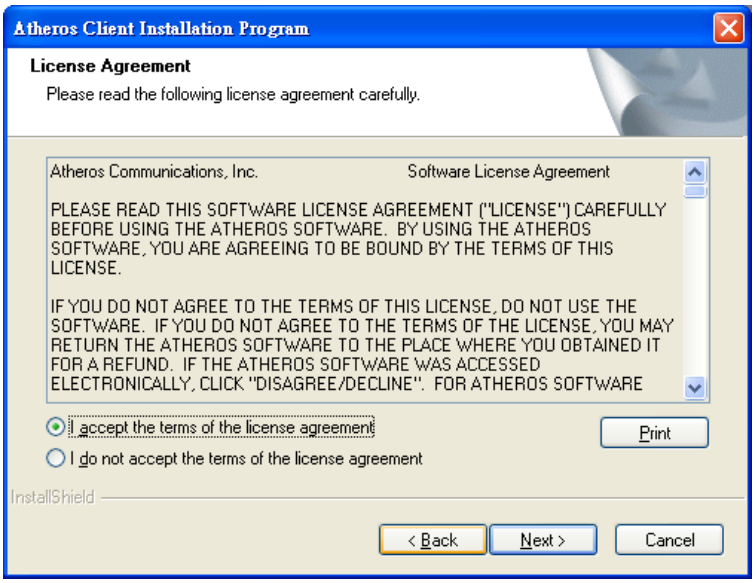

Atheros Client Installation Program
License Agreement
Please read the following license agreement carefully.
Atheros Communications, Inc. Software License Agreement
PLEASE READ THIS SOFTWARE LICENSE AGREEMENT ("LICENSE") CAREFULLY BEFORE USING THE ATHEROS SOFTWARE. BY USING THE ATHEROS SOFTWARE, YOU ARE AGREEING TO BE BOUND BY THE TERMS OF THIS LICENSE.
IF YOU DO NOT AGREE TO THE TERMS OF THIS LICENSE, DO NOT USE THE SOFTWARE. IF YOU DO NOT AGREE TO THE TERMS OF THE LICENSE, YOU MAY RETURN THE ATHEROS SOFTWARE TO THE PLACE WHERE YOU OBTAINED IT FOR A REFUND. IF THE ATHEROS SOFTWARE WAS ACCESSED ELECTRONICALLY, CLICK "DISAGREE/DECLINE". FOR ATHEROS SOFTWARE
I accept the terms of the license agreement
I do not accept the terms of the license agreement
Print
InstallShield
< Back
Next >
Cancel

Figure 6-24: Atheros Wireless LAN Driver License Agreement

Step 5: Read the license agreement. To accept the terms and conditions stipulated in the agreement, select **I Agree** and click **NEXT**.

Step 6: The Setup Type screen in Figure 6-25 appears. Select the steup type to install and then click **NEXT** to continue.

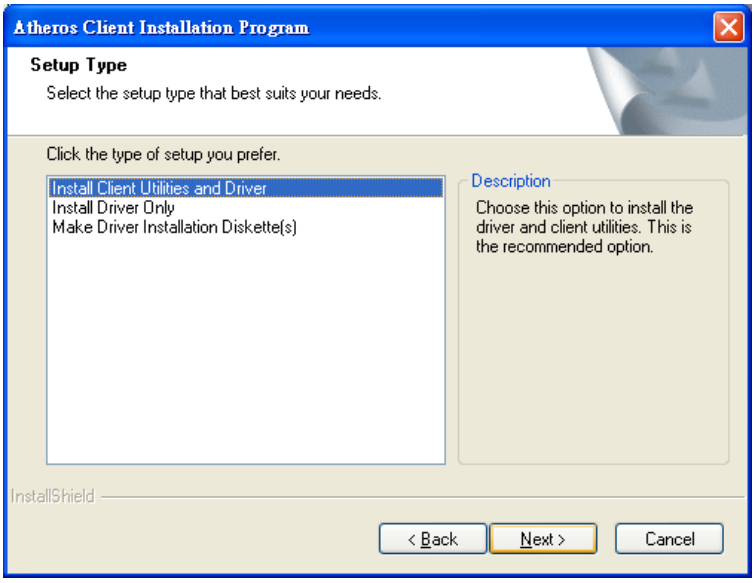

Atheros Client Installation Program
Setup Type
Select the setup type that best suits your needs.
Click the type of setup you prefer.
Install Client Utilities and Driver
Install Driver Only
Make Driver Installation Diskette(s)
Description
Choose this option to install the driver and client utilities. This is the recommended option.
InstallShield
< Back
Next >
Cancel

Figure 6-25: Wireless LAN Driver Setup Type

Step 7: Confirm or choose the destination location to install the driver then click **NEXT** to continue (**Figure 6-26**).

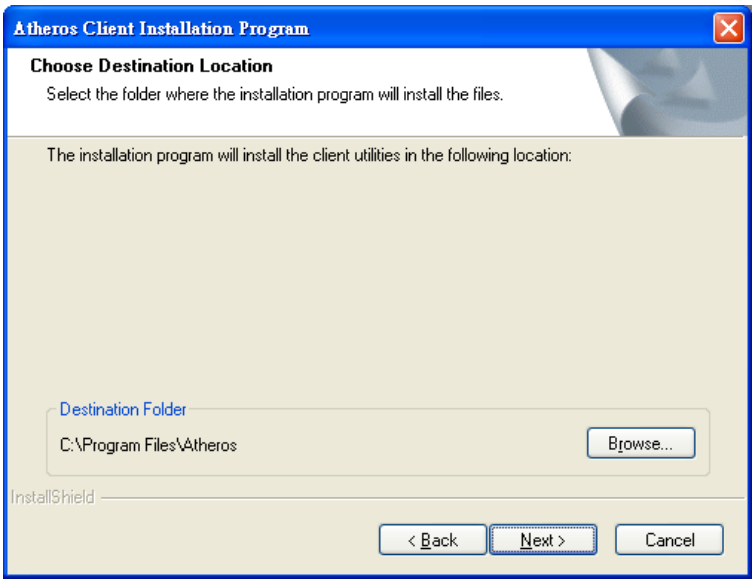

Atheros Client Installation Program
Choose Destination Location
Select the folder where the installation program will install the files.
The installation program will install the client utilities in the following location:
Destination Folder
C:\Program Files\Atheros
Browse...
InstallShield
< Back
Next >
Cancel

Figure 6-26: Driver Destination Location

Step 8: Read the important notice and click **NEXT** to continue (**Figure 6-27**).

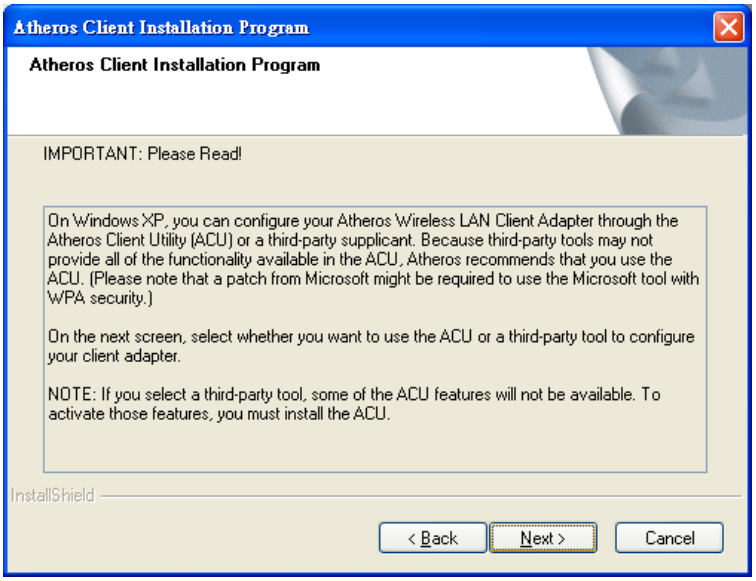

Atheros Client Installation Program
Atheros Client Installation Program
IMPORTANT: Please Read!
On Windows XP, you can configure your Atheros Wireless LAN Client Adapter through the Atheros Client Utility (ACU) or a third-party supplicant. Because third-party tools may not provide all of the functionality available in the ACU, Atheros recommends that you use the ACU. (Please note that a patch from Microsoft might be required to use the Microsoft tool with WPA security.)
On the next screen, select whether you want to use the ACU or a third-party tool to configure your client adapter.
NOTE: If you select a third-party tool, some of the ACU features will not be available. To activate those features, you must install the ACU.
InstallShield
< Back
Next >
Cancel

Figure 6-27: Wireless LAN Driver Important Notice

Step 9: Choose a configuration tool and click **NEXT** to continue (**Figure 6-28**).

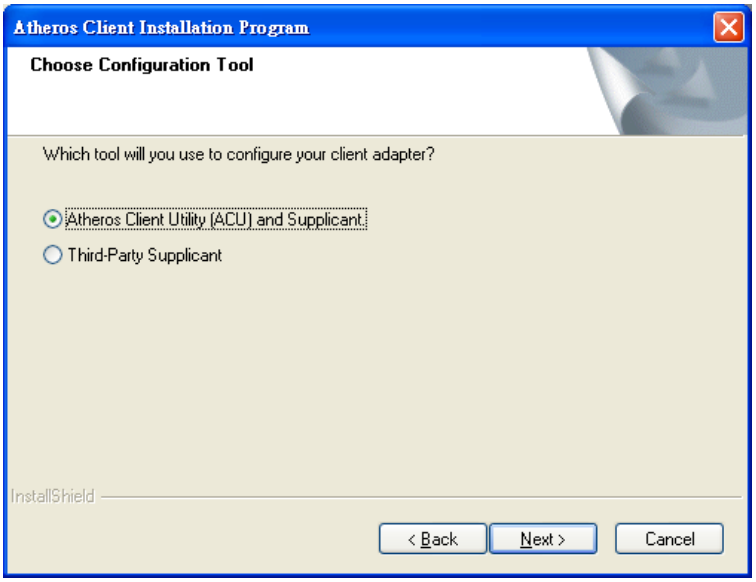


Figure 6-28: Wireless LAN Configuration Tool Selection

Step 10: Choose whether to install the Single Sign On feature (**Figure 6-29**).

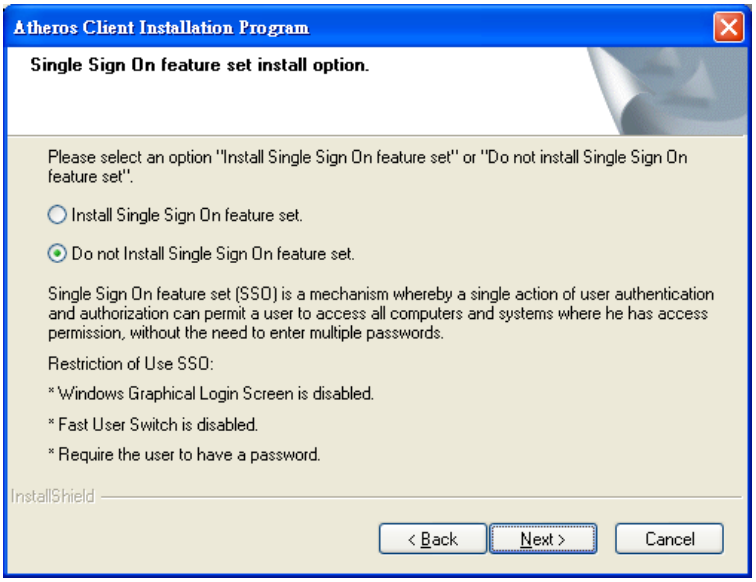

Atheros Client Installation Program
Single Sign On feature set install option.
Please select an option "Install Single Sign On feature set" or "Do not install Single Sign On feature set".
Install Single Sign On feature set.
Do not Install Single Sign On feature set.
Single Sign On feature set (SSO) is a mechanism whereby a single action of user authentication and authorization can permit a user to access all computers and systems where he has access permission, without the need to enter multiple passwords.
Restriction of Use SSO:
* Windows Graphical Login Screen is disabled.
* Fast User Switch is disabled.
* Require the user to have a password.
InstallShield
< Back
Next >
Cancel

Figure 6-29: Single Sign On Feature Selection

Step 11: Click **NEXT** to start the driver installation (**Figure 6-30**).

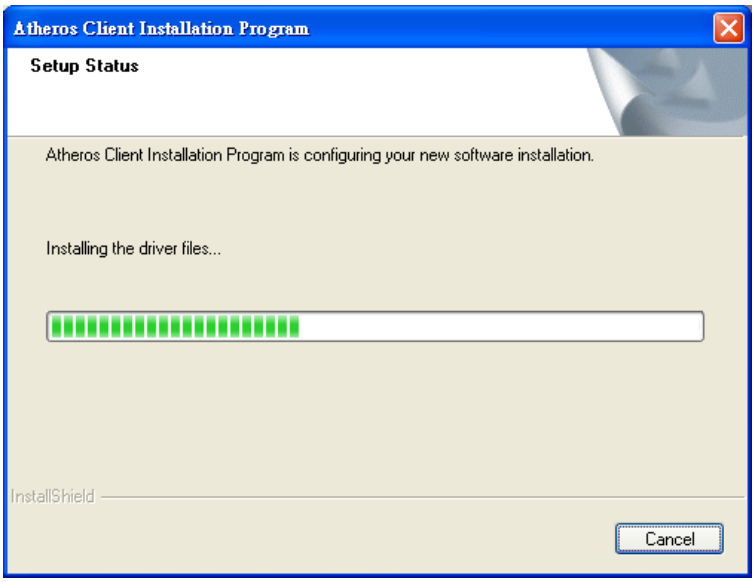


Figure 6-30: Wireless LAN Driver Installation

Step 12: When the installation is complete the Install Wizard Completed screen in **Figure 6-31** appears.

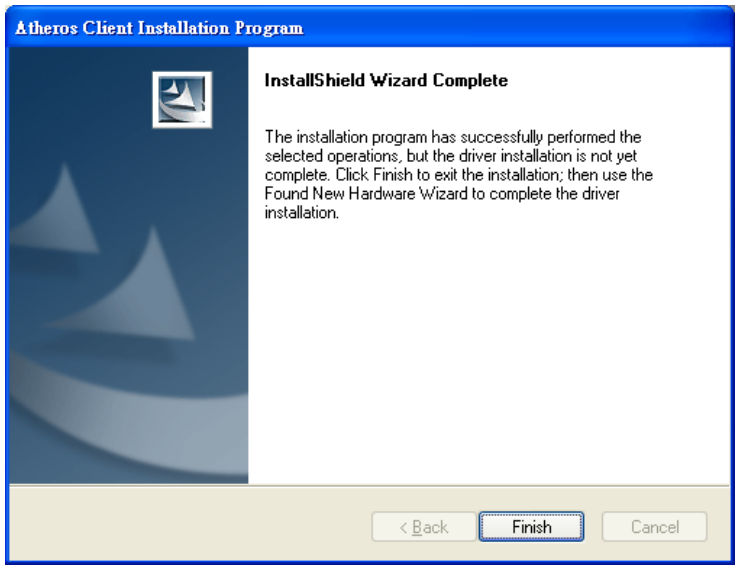

Atheros Client Installation Program
InstallShield Wizard Complete
The installation program has successfully performed the selected operations, but the driver installation is not yet complete. Click Finish to exit the installation; then use the Found New Hardware Wizard to complete the driver installation.
< Back
Finish
Cancel

Figure 6-31: Wireless LAN Driver Install Wizard Completed

Step 13: To complete the installation, click **Finish**.

THIS PAGE IS INTENTIONALLY LEFT BLANK

Chapter

7

Software Application (iSMM)

7.1 iSMM Introduction

The IEI Intelligent System Management Module (iSMM) application monitors and shows the voltage, fan speed, temperature, and watchdog time, DIO and cash drawer information of the system. The users can control the setting in the following pages:

- Voltage Page
- Fan Page
- Temperature Page
- DIO Page
- WDT Page
- Cashdrawer Page

7.2 iSMM Installation

Follow the steps below to install the iSMM application.

Step 1: Insert the utility CD that came with the IBX-700 into a CD drive connected to the system.

Step 2: Click the **setup.exe** in the IEI iSMM folder.

Step 3: The welcome screen in **Figure 7-1** appears.

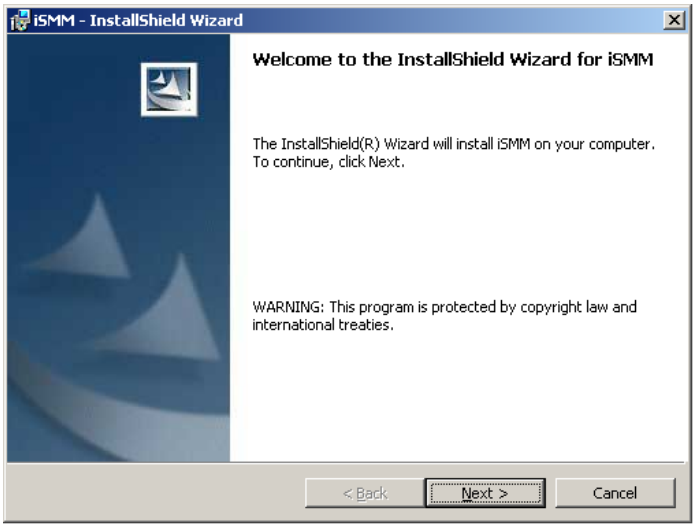

iSMM - InstallShield Wizard
Welcome to the InstallShield Wizard for iSMM
The InstallShield(R) Wizard will install iSMM on your computer. To continue, click Next.
WARNING: This program is protected by copyright law and international treaties.
< Back
Next >
Cancel

Figure 7-1: iSMM Installation Welcome Screen

Step 4: Click **NEXT** to continue the installation process.

Step 5: The customer information in **Figure 7-2** appears.

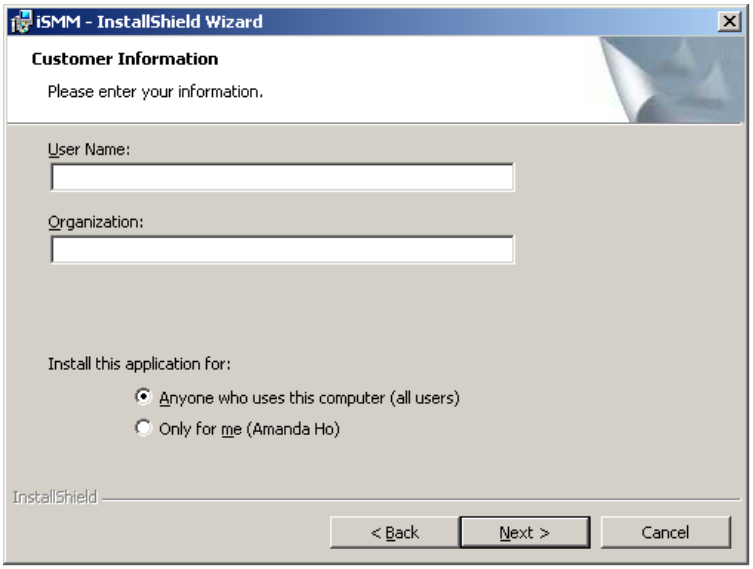


Figure 7-2: iSMM Installation Customer Information

Step 6: Fill out the information and click **NEXT**.

Step 7: The Ready to Install the Program in **Figure 7-3** appears.

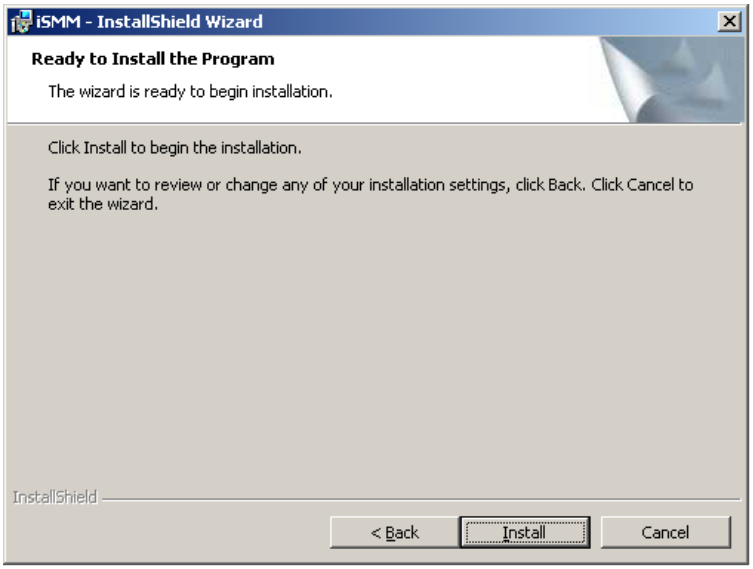

iSMM - InstallShield Wizard
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

Figure 7-3: Ready to Install the Program Window

Step 8: Click **NEXT** to start the software installation.

Step 9: After the driver installation process is complete, a confirmation screen appears.

Step 10: Click **FINISH** to complete the software installation.

7.3 Voltage Page

The IEI iSMM application monitors and shows the current system voltages on the Voltage Page (**Figure 7-4**). The following sections describe the Voltage Page in details.

Figure 7-4: Voltage Page

7.3.1 Refresh Time Setting

The iSMM refreshes the voltage values according to the refresh time period set by the user. Follow the steps below to set the refresh time:

Step 1: Click on the Voltage Page tab.

Step 2: Entering a value beside the **Refresh time (Sec)** (**Figure 7-5**).

Step 3: Click **apply** (**Figure 7-5**).

Figure 7-5: Voltage Refresh Time Setting

7.3.2 High Limit Value and Low Limit Value Setting

The high limit value and low limit value of each voltage can be set by the user. When the voltage is greater than the high limit value or smaller than the low limit value, the voltage value shows in red. For example, the VBAT voltage (3.22V) shows in red in **Figure 7-4** since the current VBAT voltage is greater than the high limit value (3.2V).

To set the high limit value or low limit value, follow the steps below.

Step 1: Double click a high limit value or a low limit value to enter the new value (**Figure 7-6**).

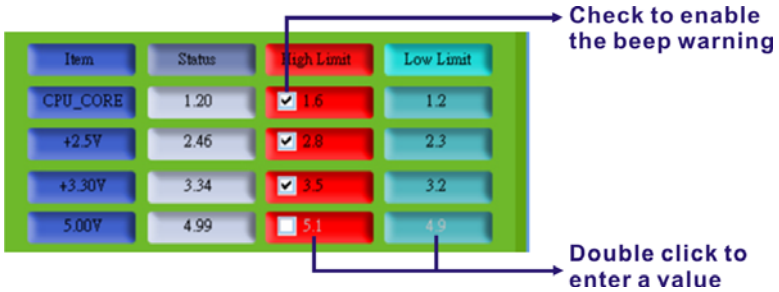


Figure 7-6: Voltage Page – High Limit and Low Limit

Step 2: Check the high or low limit value to have the system use the beep warning when the specified system voltage is greater or smaller than the high limit or low limit (**Figure 7-6**). (Make sure to enable beep/audio alarm on the Load/Save Page. Refer to **Section 7.8**)

7.4 Fan Page

The IEI iSMM application monitors and shows the fan speeds on the Fan Page (**Figure 7-7**). The following sections describe the Fan Page in details.

Figure 7-7: Fan Page

7.4.1 Refresh Time Setting

The iSMM refreshes the fan speed values according to the refresh time period set by the user. Follow the steps below to set the refresh time:

Step 1: Click on the Fan Page tab.

Step 2: Entering a value beside the **Refresh time (Sec)** (**Figure 7-8**).

Step 3: Click **apply** (**Figure 7-8**).

Figure 7-8: Fan Speed Refresh Time Setting

7.4.2 High Limit Value and Low Limit Value Setting

The high limit value and low limit value of each fan speed can be set by the user. When the fan speed is greater than the high limit value or smaller than the low limit value, the fan speed value shows in red. For example, the CPU fan speed (1920) shows in red in **Figure 7-7** since the current CPU speed is lower than the low limit value (2000).

To set the high limit value or low limit value, follow the steps below.

Step 1: Double click a high limit value or a low limit value to enter the new value (**Figure 7-9**).

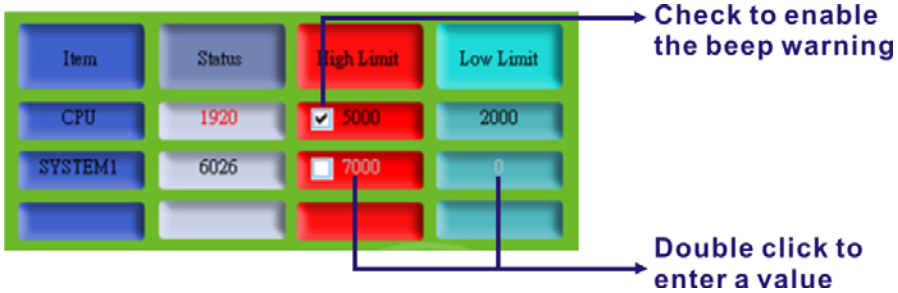


Figure 7-9: Fan Page – High Limit and Low Limit

Step 2: Check the high or low limit value to have the system use the beep warning when the specified fan speed is greater or smaller than the high limit or low limit (**Figure 7-9**). (Make sure to enable beep/audio alarm on the Load/Save Page. Refer to **Section 7.8**)

7.4.3 Smart Fan Setting

The Smart Fan Setting page is for advanced fan setting. The user can enable or disable the specific fan. When the fan is enabled, the user can control the fan in three different modes (On/Off Mode, PWM Mode and Automatic Mode).

7.4.3.1 On/Off Mode

In the On/Off Mode, choose **Off** or **On** to turn off or turn on the fan. Click **apply** or **ok** when finish.

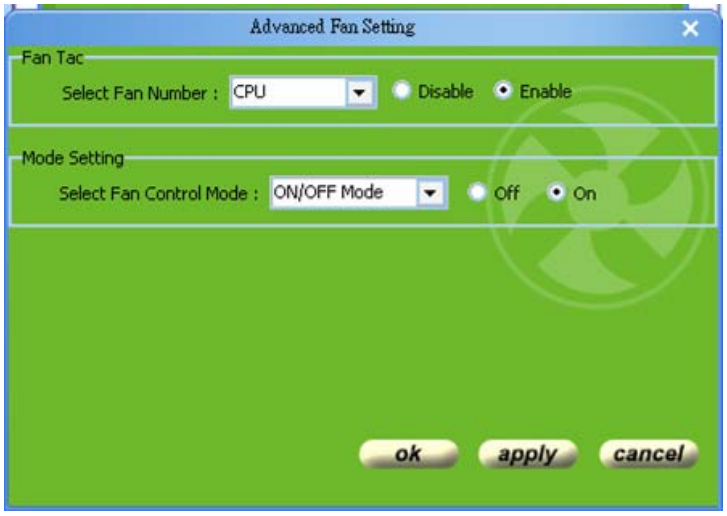


Figure 7-10: Smart Fan Setting – On/Off Mode

7.4.3.2 PWM Mode

In the PWM Mode, the user can set the PWM value from 0 to 127 by entering a value (**Figure 7-11**). To set the value, double click the number and enter a new value. Click **apply** or **ok** when finish.

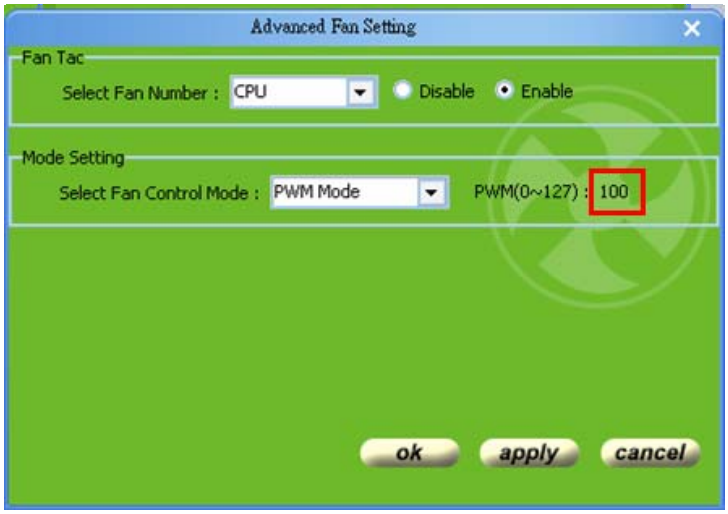


Figure 7-11: Smart Fan Setting – PWM Mode

7.4.3.3 Automatic Mode

In the Automatic Mode, the user can set the temperature that decides the fan activity. The following value can be set (**Figure 7-12**):

- Fan Start (°C): the fan starts when the temperature reaches the set value
- Fan Off (°C): the fan turns off when the temperature reaches the set value
- Full Speed (°C): the fan runs at full speed when the temperature reaches the set value
- Start PWM Value (0~127): the initial PWM value when the fan starts
- Slope (PWM Value (add/°C): the PWM value added per degree Celsius (°C) of temperature increase when the fan start running

To set the value, double click the number and enter a new value. Click **apply** or **ok** when finish.

Figure 7-12: Smart Fan Setting – Automatic Mode

7.5 Temperature Page

The IEI iSMM application monitors the current CPU temperature and system temperature and shows the temperature on the Temperature Page (**Figure 7-13**). The following sections describe the Temperature Page in details.

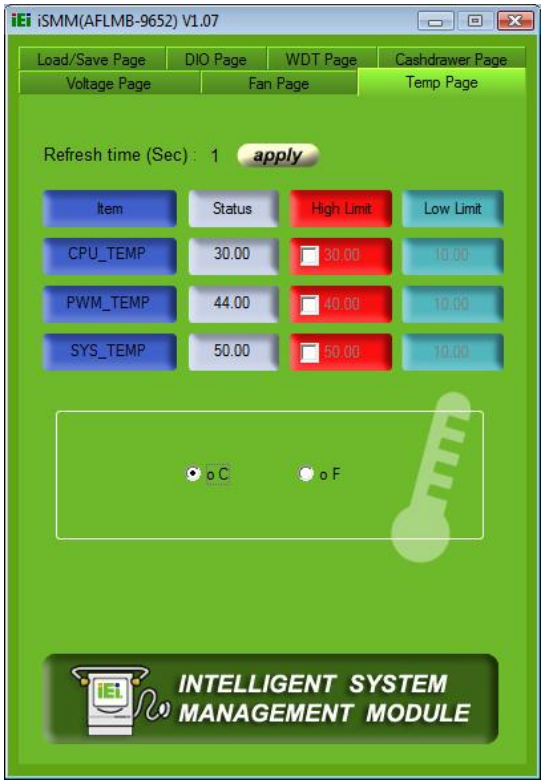


Figure 7-13: Temperature Page

7.5.1 Refresh Time Setting

The iSMM refreshes the CPU and system temperature according to the refresh time period set by the user. Follow the steps below to set the refresh time:

Step 1: Click on the Temperature Page tab.

Step 2: Entering a value beside the **Refresh time (Sec)** (**Figure 7-14**).

Step 3: Click apply (**Figure 7-14**).

Figure 7-14: Temperature Refresh Time Setting

7.5.2 High Limit Value and Low Limit Value Setting

The high limit value and low limit value of each temperature can be set by the user. When the temperature is greater than the high limit value or lower than the low limit value, the temperature value shows in red. For example, the SYSTEM1 temperature (48) shows in red in **Figure 7-13** since the current system temperature is greater than the high limit value (40). The temperature scale can be changed from Celsius scale (°C) to Fahrenheit scale (°F).

To set the high limit value or low limit value, follow the steps below.

Step 1: Double click a high limit value or a low limit value to enter the new value (**Figure 7-15**).

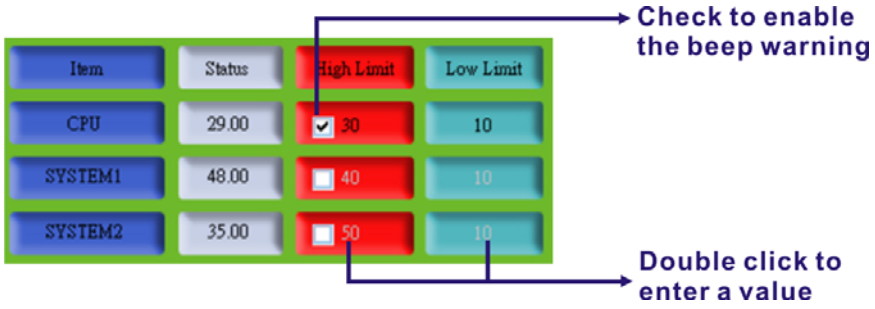


Figure 7-15: Temperature Page – High Limit and Low Limit

Step 2: Check the high or low limit value to have the system use the beep warning when the specified temperature is greater or lower than the high limit or low limit (Figure 7-15). (Make sure to enable beep/audio alarm on the Load/Save Page. Refer to **Section 7.8**). (Make sure to enable beep/audio alarm on the Load/Save Page.)

7.6 Cash Drawer Page

The Cashdrawer Page of the IEI iSMM application allows users to view and control the cash drawers connected to the IBX-700 series. **Figure 7-17** shows an example of the status of the cash drawers:

- No. 1 cash drawer: open
- No. 2 cash drawer: closed

The user can change the status of the cash drawer by clicking the image.

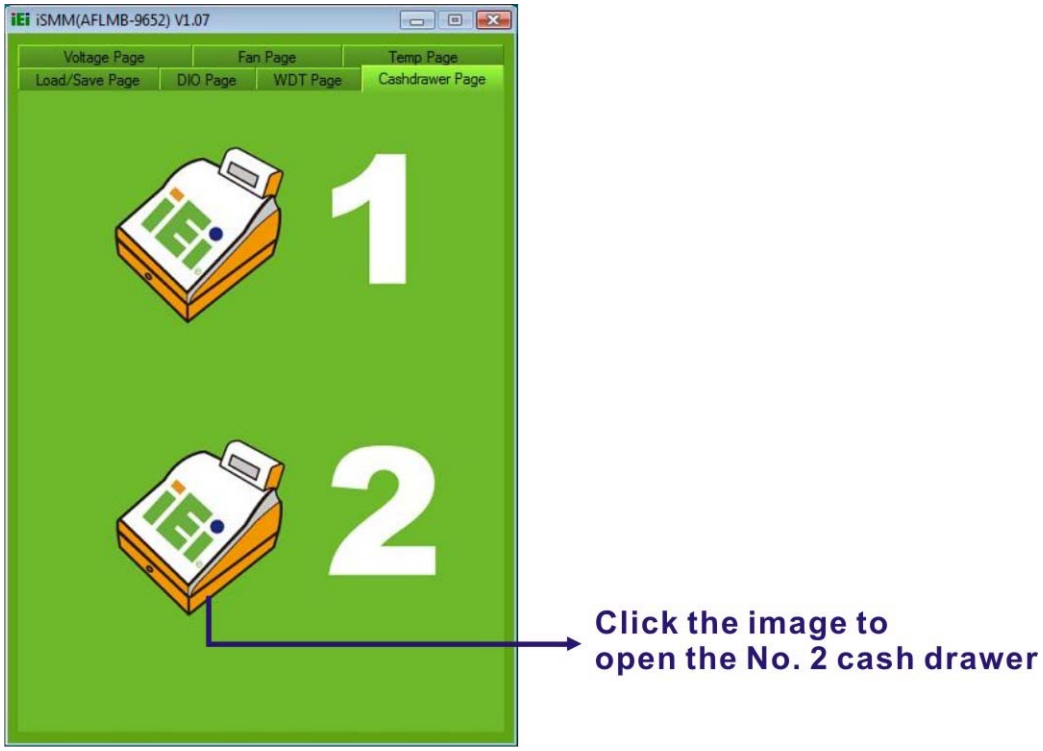


Figure 7-16: Cash Drawer Page

7.7 Watchdog Timer Page

The IEI iSMM application allows users to set watchdog timer on the WDT Page (**Figure 7-17**).

Figure 7-17: WDT Page

Set Timeout	Set the watchdog timer value. The value is a period of time that the system will shut down if the timer is not reset in that period of time.
Start	Click to start the watchdog timer
stop	Click to stop the watchdog timer
Auto refresh	The watchdog timer auto resets before timeout.

7.8 DIO Page

The IEI iSMM application monitors the current voltage of the digital input and digital output and shows the information on the DIO Page (**Figure 7-18**). The digital output information can be set and written to an internal register to control the state driven on the output pin.

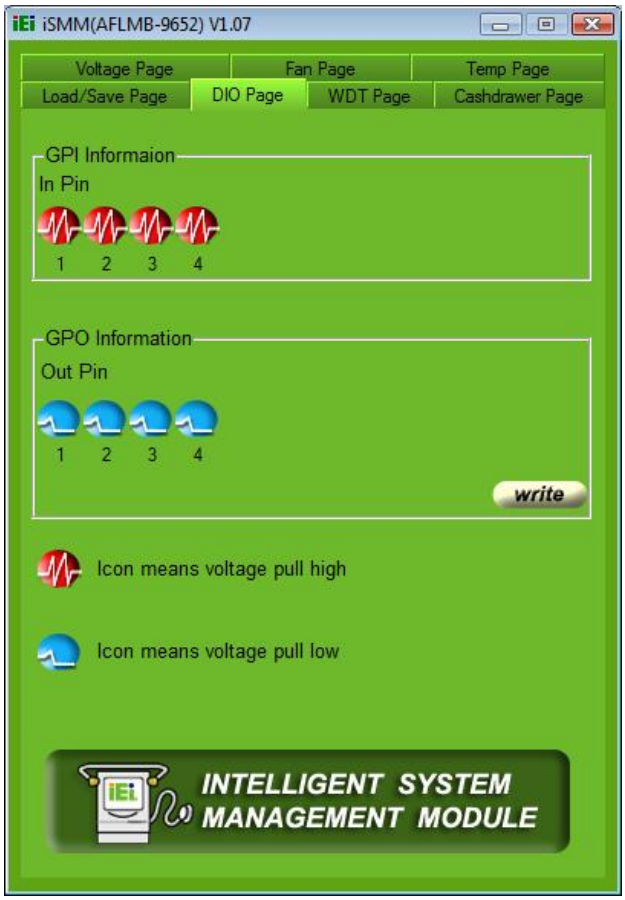


Figure 7-18: DIO Page

7.8.1 GPO Information Setting

Follow the steps below to set the GPO.

Step 1: Click the DIO Page.

Step 2: Click the icon in the GPO Information section to change the output pin state.

(: voltage pull high)

(: voltage pull low)

Step 3: Click **Write** to write to an internal register to control the state after finish setting the output pin.

7.9 Load/Save Page

The IEI iSMM application allows the user to save the settings of all the high limit/low limit values and smart fan setting as an ***.ini** file. Thus, the user can load the setting easily to the iSMM if necessary. The saving and loading action is done from the Load/Save Page of the iSMM (**Figure 7-19**). This page can also enable the beep/audio alarm.

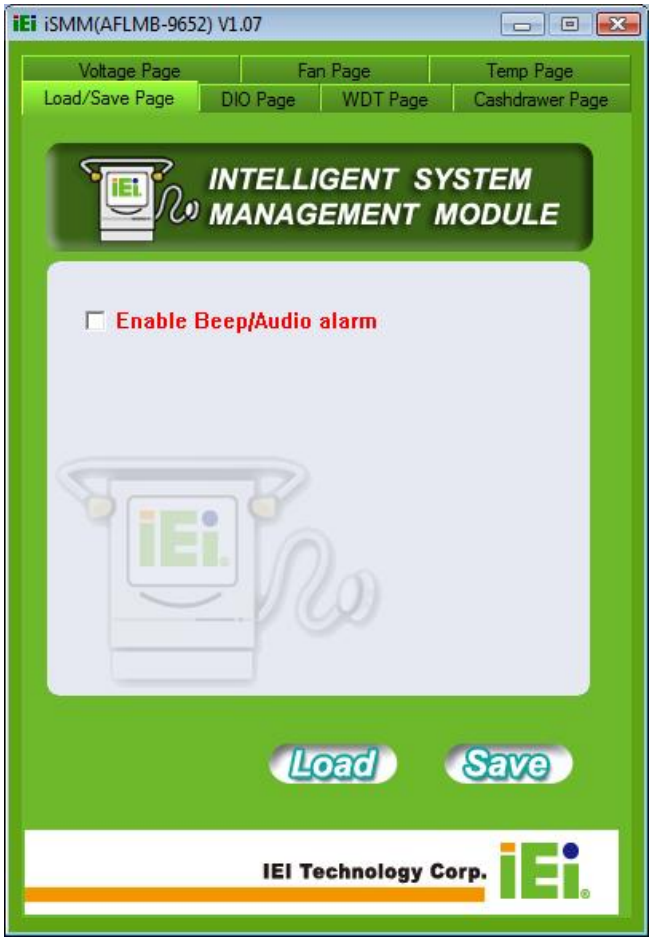


Figure 7-19: Load/Save Page

Chapter

8

Troubleshooting and Maintenance

WARNING:

Only certified engineers should modify on-board functions and install the internal components described in the following Sections.

WARNING:

Take Anti-Static precautions whenever maintenance is being carried out on the system components. Failure to take anti-static precautions can cause permanent system damage. For more details on anti-static precautions, please refer to **Section 4.1**.

8.1 IBX-700 Series System Maintenance Overview

NOTE:

When doing maintenance operations on the system, please follow the instructions in this chapter. Failure to follow these instructions may lead to personal injury and system damage.

To preserve the working integrity of the IBX-700 Series, the system must be properly maintained. If embedded system components need replacement, the proper maintenance procedures must be followed to ensure the system can continue to operate normally.

8.2 System Troubleshooting

This section provides some simple troubleshooting suggestions.

8.2.1 The System Doesn't Turn On

If after turning the system on, there is no power (indicated by the power LED on the front panel not turning on) please do the following:

Step 1: Check that the power cable connector is properly connected to the terminal block or power socket on the system rear panel.

Step 2: Check that the power cable connector is properly plugged into the power source.

Step 3: Make sure the power button is turned on.

Step 4: Plug the system into a monitor and check to see if anything appears on the screen. If the boot-up screen appears it means the power LED has become disconnected. To fix this problem, remove the cover case and reconnect the power LED to the motherboard.

If the above steps have been completed and the system still doesn't turn on, please do the following.

Step 1: Remove the cover case (**Section 8.3.1**).

Step 2: Check the terminal block/power socket power cable connector is properly connected to the power module.

Step 3: Check that the power switch cable connector is properly connected to the motherboard.

Step 4: Make sure the cable connecting to the terminal block/power socket are properly attached and have not become separated.

Step 5: Make sure the cable connecting the power switch to the motherboard is still properly attached to the power switch and has not been separated.

8.2.2 The System Doesn't Boot Up

If the system doesn't boot up please do the following:

Step 1: Check the power is turned on. See **Section 8.2.1** above.

Step 2: Make sure the DIMM module is properly installed.

Step 3: Reset the system using the reset CMOS jumper.

8.3 Jumper Setting and Expansion Card Installation

8.3.1 Cover Case Removal

Before the jumper settings can be configured and an expansion card can be installed, the cover case must be removed. To remove the cover case, please follow the steps below:

Step 1: Remove the two cover case thumb screws on the rear panel (**Figure 8-1**).

Figure 8-1: Cover Case Thumb Screws

Step 2: Push the rear panel of the IBX-700 Series to make the cover case apart from the chassis. Draw out the front panel like pulling out a drawer until the cover case can be fully removed from the IBX-700 (**Figure 8-2**).

Figure 8-2: Cover Case Removal

8.3.2 Configure the Jumper Settings

To configure the jumper settings, please follow the steps below.

Step 1: Remove the cover case. See **Section 8.3**.

Step 2: Locate the jumper settings on the embedded motherboard. See **Section 3.3**.

Step 3: Make the jumper settings in accordance with the settings described and defined in **Section 3.3**.

8.3.3 Expansion Card Installation (Optional)

Some IBX-700 Series models are preinstalled with a riser card for an expansion card. To install an expansion card, please follow the steps below.

Step 1: **Remove the slot cover**. The expansion card slot on the rear panel of the IBX-700 is covered with a cover. To remove the cover, remove the retention screw (**Figure 8-3**).

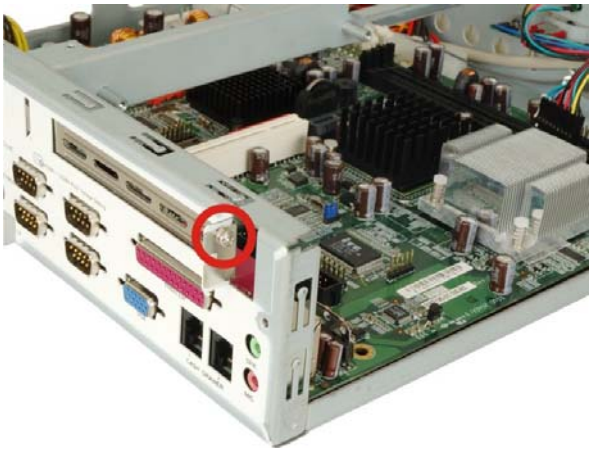


Figure 8-3: Expansion Slot Cover Retention Screws

Step 2: **Install the expansion card.** Connect the expansion card connectors to the respective connector on the riser card (**Figure 8-4**).

Step 3: **Secure the expansion card**. Secure the expansion card by reinserting the previously removed retention screw (**Figure 8-4**).

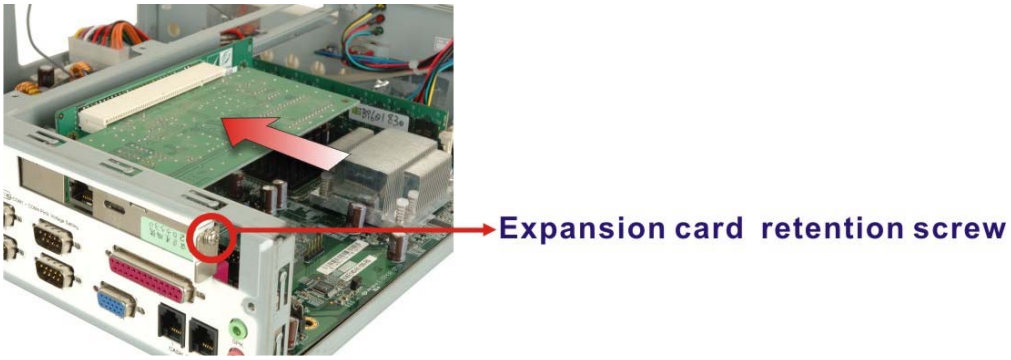


Figure 8-4: Installed Expansion Card

8.4 Component Replacement Procedure

WARNING:

Take Anti-Static precautions whenever maintenance is being carried out on the system components. Failure to take anti-static precautions can cause permanent system damage. For more details on anti-static precautions, please refer to **Section 4.1**.

The embedded system components listed below can all be replaced if they fail:

- HDD
- POS motherboard
- Power module
- DIMM module
- DVD drive (optional)
- PCI/PCIe riser card (optional)
- CPU and CPU cooling fan (IBX-700-9153 only)

8.4.1 HDD Replacement

HDD replacement includes the following two procedures:

Step 1: Removing the malfunction HDD

Step 2: Installing the replacement HDD

8.4.1.1 HDD Removal

To remove the HDD, please follow the steps below.

Step 1: Power down the system.

Step 2: Remove the cover case. See **Section 8.3.1**.

Step 3: The HDD bracket is attached to the chassis by four retention screws (**Figure 8-5**). Remove the four retention screws from the chassis.

Figure 8-5: HDD Bracket Retention Screws

Step 4: Disconnect the following cable connectors (**Figure 8-6**):

- SATA connectors (on the motherboard)
- Power connectors (on the power module)

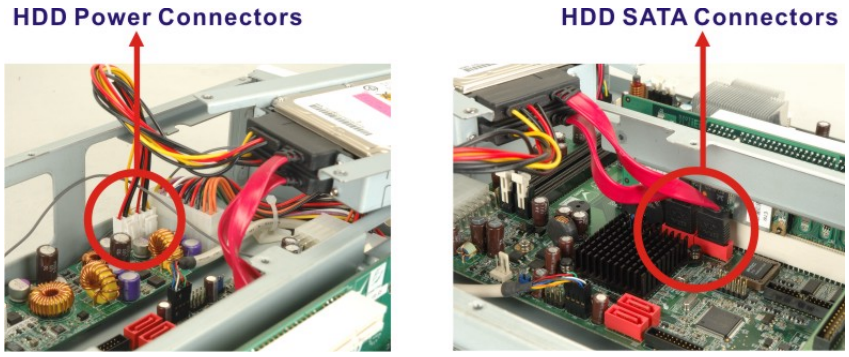


Figure 8-6: HDD Connectors

Step 5: Remove the HDD from the HDD bracket by removing the four retention screws on both sides of the HDD (**Figure 8-7**).

Figure 8-7: HDD Retention Screws

8.4.1.2 HDD Installation

To install the new HDD, please follow the steps below.

Step 1: Attach the new HDD to the HDD bracket. To do this, slide the HDD into the HDD bracket to connect the rear of HDD with the cable connector.

Step 2: Align the four retention screw holes in both side of HDD with the retention screw holes on the side of the HDD bracket. Insert four previously removed retention screws into the bracket on both sides of the HDD (**Figure 8-7**).

Step 3: Reinstall the HDD into the IBX-700 by aligning the retention screw holes in the top of the HDD bracket with the retention screw holes on the chassis. Insert the four previously removed retention screws into the top of the HDD bracket (**Figure 8-5**).

Step 4: Reconnect the following cable connectors (**Figure 8-6**):

- SATA connectors (on the motherboard)
- Power connectors (on the power module)

8.4.2 Motherboard Replacement

POS motherboard replacement includes the following two procedures:

Step 5: Removing the malfunction motherboard

Step 6: Installing the replacement motherboard

8.4.2.1 Motherboard Removal

To remove the POS motherboard, please follow the steps below.

Step 1: Power down the system.

Step 2: Disconnect all rear panel peripheral device connectors.

Step 3: Remove the CF module (if installed) from the rear panel of the IBX-700.

Step 4: Remove the two VGA connector retention screws, two parallel connector retention screws and the eight serial port retention screws on the rear panel. (**Figure 8-8**)

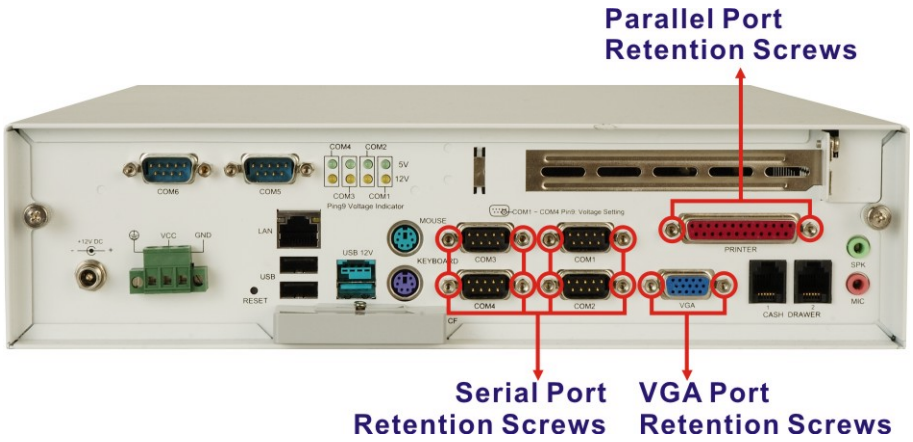


Figure 8-8: Rear Panel Connector Retention Screws

Step 5: Remove the cover case. See **Section 8.3.1**.

Step 6: Remove the HDD. See **Section 8.4.1.1**

Step 7: Remove the ODD. See **Section 8.4.5.1**

Step 8: Remove the following connector cables (See **Figure 8-9**):

- Power connector
- Front panel connector
- USB connector
- Serial port and LED connector

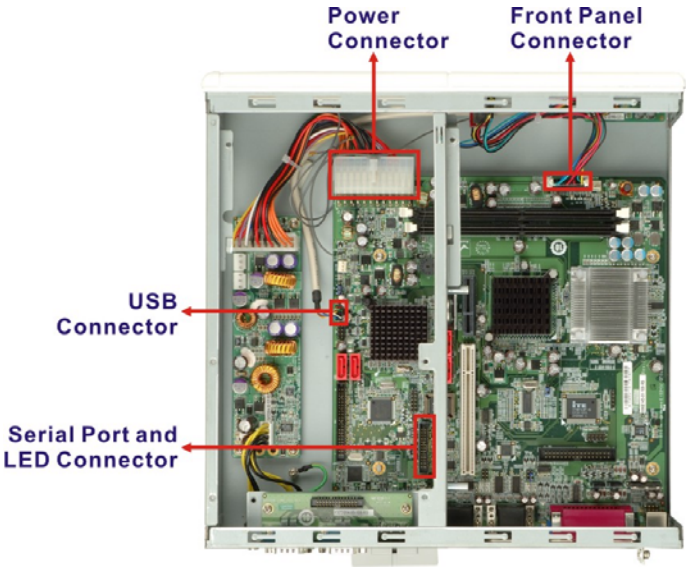


Figure 8-9: Motherboard Connectors

Step 9: Remove the three retention screws that secure the POS motherboard to the IBX-700. (See **Figure 8-10**)

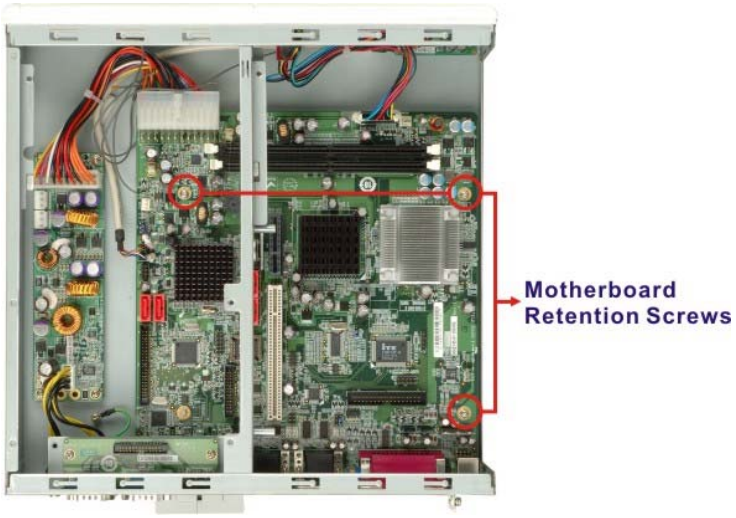


Figure 8-10: Motherboard Retention Screws

Step 10: Remove the POS motherboard.

Step 11: Remove the DIMM.

Step 12: Remove the CPU and CPU fan (for IBX-700-9153).

8.4.2.2 Motherboard Installation

To install the new motherboard, please follow the steps below.

Step 1: Install the previously removed CPU and CPU fan (for IBX-700-9153).

Step 2: Install the previously removed DIMM.

Step 3: Install the new motherboard into the system. When installing the new motherboard make sure the external peripheral device connectors are properly aligned with the preformed holes in the system rear panel.

Step 4: Reinsert the three previously removed motherboard retention screws and the 12 previously removed rear panel retention screws. (See **Figure 8-10** and **Figure 8-8**)

Step 5: Reconnect the following cable connectors (See **Figure 8-9**):

- Power connector
- Front panel connector
- USB connector
- Serial port and LED connector

Step 6: Install the previously removed DVD.

Step 7: Install the previously removed HDD.

Step 8: Replace the cover case. Once replaced reinsert the two previously removed thumb screws.

Step 9: Reconnect the peripheral devices to the peripheral device connectors on the rear panel.

Step 10: Install the previously removed CF card.

Step 11: Power up the system.

8.4.3 Power Module Replacement

Power module replacement includes the following two procedures:

Step 1: Removing the power module

Step 2: Installing the replacement power module

8.4.3.1 Power Module Removal

To remove the power module, please follow the steps below.

Step 1: Turn off the system.

Step 2: Disconnect the rear panel power cable from the +12 V socket or the terminal block.

Step 3: Remove the cover case. See **Section 8.3.1**.

Step 4: Remove the HDD. See **Section 8.4.1.1**.

Step 5: Remove the ODD. See **Section 8.4.5.1**.

Step 6: Remove the following connector cables (**Figure 8-11**):

- Motherboard ATX connector
- HDD power connector
- ODD power connector
- Power socket and terminal block connector

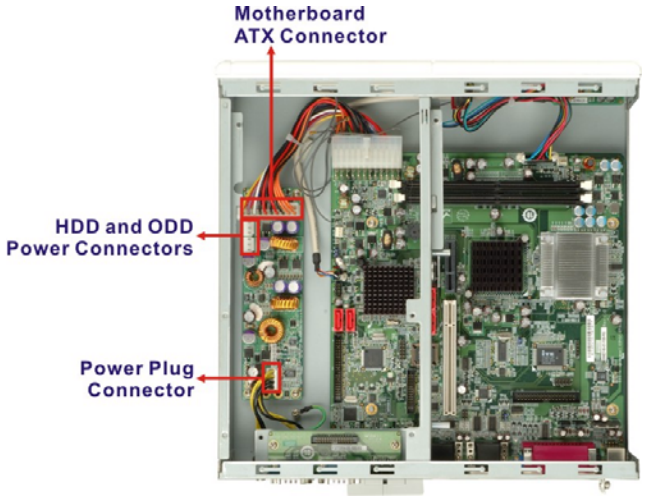


Figure 8-11: Power Module Internal Connectors

Step 7: Remove the four retention screws that secure the power module to the system. (**Figure 8-12**)

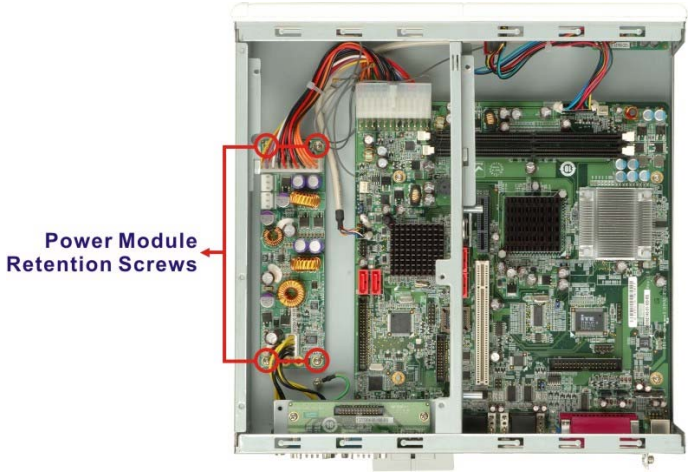


Figure 8-12: Power Module Retention Screws

Step 8: Remove the power module.

8.4.3.2 Power Module Installation

To install the new power module, please follow the steps below.

Step 1: Install the new power module into the system.

Step 2: Reinsert the four, previously removed power module retention screws.

Step 3: Reconnect the following cable connectors (**Figure 8-11**):

- Motherboard ATX connector
- HDD power connector
- ODD power connector
- Power socket and terminal block connector

Step 4: Reinstall the HDD and the ODD.

Step 5: Replace the cover case. Once replaced reinsert the two previously removed thumb screws. (**Figure 8-12**)

Step 6: Reconnect the power cable to either the terminal block or +12 V socket

Step 7: Power up the system.

8.4.4 DIMM Replacement

To replace the DIMM please follow the steps below.

Step 1: Remove the cover case. See **Section 8.3.1**.

Step 2: Remove the ODD. See **Section 8.4.5.1**

Step 3: Locate the DIMM. Push the white clips on the side of the DIMM down. The DIMM is dislodged from the DIMM socket.

Step 4: Insert the new DIMM. Properly align the DIMM pins with the socket and the gently push the DIMM into the DIMM socket until the white side handles close (**Figure 8-13**).

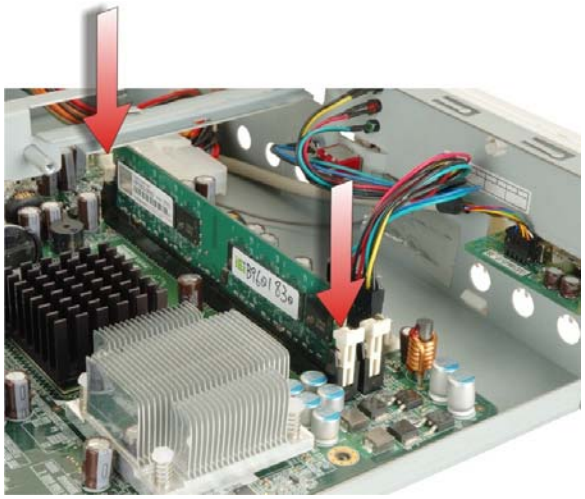


Figure 8-13: DIMM Installation

8.4.5 ODD Replacement (Optional)

ODD replacement includes the following two procedures:

Step 1: Removing the malfunction ODD.

Step 2: Installing the replacement ODD.

8.4.5.1 ODD Removal

To remove the ODD, please follow the steps below.

Step 1: Power down the system.

Step 2: Remove the cover case. See **Section 8.3.1**.

Step 3: Remove the HDD. See **Section 8.4.1.1 Step 3**.

Step 4: Disconnect the SATA cable from the POS motherboard.

Step 5: The ODD bracket is attached to the chassis by two retention screws. Remove the two retention screws from the chassis (**Figure 8-14**).

Step 6: Slide the ODD bracket toward the rear panel of the IBX-700 and take out the

ODD with bracket (**Figure 8-14**).

Figure 8-14: ODD Bracket Retention Screws

Step 7: Remove the SATA cable from the rear of ODD by removing the two retention screws (**Figure 8-15**).

Figure 8-15: ODD SATA Cable Retention Screws

Step 8: Remove the ODD from the ODD bracket by removing the four retention screws on both sides of the HDD (**Figure 8-16**).

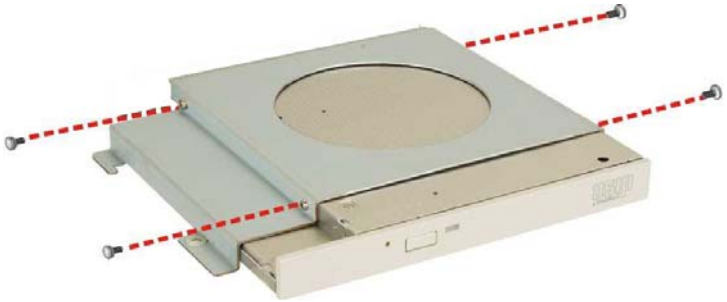


Figure 8-16: ODD Retention Screws

8.4.5.2 ODD Installation

To install the new ODD, please follow the steps below.

Step 1: Attach the new ODD to the ODD bracket. Align the four retention screw holes in both side of ODD with the retention screw holes on the side of the ODD bracket. Insert the four previously removed retention screws into the bracket on both sides of the ODD (**Figure 8-16**).

Step 2: Attach the SATA cable to the ODD by aligning the two retention screw holes in the SATA cable with the retention screw holes on the rear of the ODD. Insert two retention screws into the SATA cable (**Figure 8-15**).

Step 3: Reinstall the ODD into the IBX-700 by aligning the retention screw holes in the top of the ODD bracket with the retention screw holes on the chassis. Reinsert the two previously removed retention screws into the ODD bracket (**Figure 8-14**).

Step 4: Reconnect the SATA and power cable connectors from the rear of ODD to the motherboard and the power module.

8.4.6 Riser Card Replacement (Optional)

Step 5: Remove the cover case. See **Section 8.3.1**.

Step 6: Remove the expansion card installed on the riser card.

Step 7: Remove the two retention screws on the riser card (**Figure 8-17**).

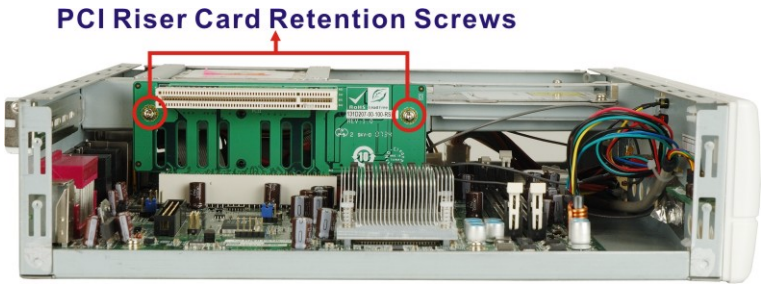


Figure 8-17: Riser Card Retention Screws

Step 8: Pull the riser card out of the PCI and PCIe x1 sockets on the motherboard. (**Figure 8-18**)

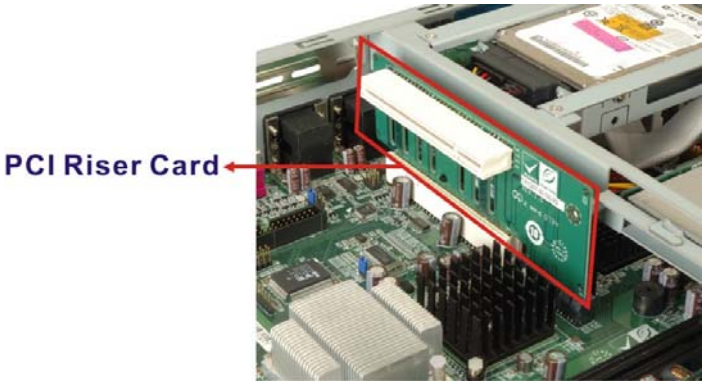


Figure 8-18: Riser Card Location

Step 9: Remove the wireless LAN module on the riser card.

Step 10: Reinstall the wireless LAN module to the new riser card.

Step 11: Insert the new riser card. Properly align the riser card pins with the PCI and PCIe x1 sockets. Gently push the riser card into the PCI and PCIe x1 sockets.

Step 12: Reinsert the two, previously removed riser card retention screws.

Appendix

A

Safety Precautions

WARNING:

The precautions outlined in this chapter should be strictly followed. Failure to follow these precautions may result in permanent damage to the IBX-700 Series.

A.1 Safety Precautions

Please follow the safety precautions outlined in the sections that follow:

A.1.1 General Safety Precautions

Please ensure the following safety precautions are adhered to at all times.

- ***Follow the electrostatic precautions*** outlined below whenever the IBX-700 Series is opened.
- ***Make sure the power is turned off and the power cord is disconnected*** whenever the IBX-700 Series is being installed, moved or modified.
- ***Do not apply voltage levels that exceed the specified voltage range***. Doing so may cause fire and/or an electrical shock.
- ***Electric shocks can occur*** if the IBX-700 Series chassis is opened when the IBX-700 Series is running.
- ***Do not drop or insert any objects*** into the ventilation openings of the IBX-700 Series.
- ***If considerable amounts of dust, water, or fluids enter the IBX-700 Series***, turn off the power supply immediately, unplug the power cord, and contact the IBX-700 Series vendor.
- **DO NOT**:
  - Drop the IBX-700 Series against a hard surface.
  - Strike or exert excessive force onto the LCD panel.
  - Touch any of the LCD panels with a sharp object
  - In a site where the ambient temperature exceeds the rated temperature

A.1.2 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the installation of the IBX-700 Series may result in permanent damage to the IBX-700 Series and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the IBX-700 Series. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the IBX-700 Series is opened and any of the electrical components are handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband***: Wearing a simple anti-static wristband can help to prevent ESD from damaging any electrical component.
- ***Self-grounding***: Before handling any electrical component, touch any grounded conducting material. During the time the electrical component is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad***: When configuring or working with an electrical component, place it on an antic-static pad. This reduces the possibility of ESD damage.
- ***Only handle the edges of the electrical component***: When handling the electrical component, hold the electrical component by its edges.

A.2 Maintenance and Cleaning Precautions

When maintaining or cleaning the IBX-700 Series, please follow the guidelines below.

A.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the IBX-700 Series, please read the details below.

- Except for the LCD panel, never spray or squirt liquids directly onto any other

components. To clean the LCD panel, gently wipe it with a piece of soft dry cloth or a slightly moistened cloth.

- The interior of the IBX-700 Series does not require cleaning. Keep fluids away from the IBX-700 Series interior.
- Be cautious of all small removable components when vacuuming the IBX-700 Series.
- Turn the IBX-700 Series off before cleaning the IBX-700 Series.
- Never drop any objects or liquids through the openings of the IBX-700 Series.
- Be cautious of any possible allergic reactions to solvents or chemicals used when cleaning the IBX-700 Series.
- Avoid eating, drinking and smoking within vicinity of the IBX-700 Series.

A.2.2 Cleaning Tools

Some components in the IBX-700 Series may only be cleaned using a product specifically designed for the purpose. In such case, the product will be explicitly mentioned in the cleaning tips. Below is a list of items to use when cleaning the IBX-700 Series.

- ***Cloth*** – Although paper towels or tissues can be used, a soft, clean piece of cloth is recommended when cleaning the IBX-700 Series.
- ***Water or rubbing alcohol*** – A cloth moistened with water or rubbing alcohol can be used to clean the IBX-700 Series.
- ***Using solvents*** – The use of solvents is not recommended when cleaning the IBX-700 Series as they may damage the plastic parts.
- ***Vacuum cleaner*** – Using a vacuum specifically designed for computers is one of the best methods of cleaning the IBX-700 Series. Dust and dirt can restrict the airflow in the IBX-700 Series and cause its circuitry to corrode.
- ***Cotton swabs*** - Cotton swaps moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas.
- ***Foam swabs*** - Whenever possible, it is best to use lint free swabs such as foam swabs for cleaning.

Appendix

B

Interface Connectors

B.1 Peripheral Interface Connectors

The IBX-700 Series motherboard, the POS-9103/POS-9153 comes with a number of peripheral interface connectors and configuration jumpers listed in **Section 3.2.1**. The pinouts for these connectors are listed below:

➔ **CF1: CompactFlash® Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GROUND	26	PULL DOWN
2	D3	27	D11
3	D4	28	D12
4	D5	29	D13
5	D6	30	D14
6	D7	31	D15
7	CS1#	32	CS3#
8	N/C	33	N/C
9	GROUND	34	IOR#
10	N/C	35	IOW#
11	N/C	36	VCC
12	N/C	37	IRQ15
13	VCC	38	VCC
14	N/C	39	MASTER/SLAVE
15	N/C	40	N/C
16	N/C	41	RESET#
17	N/C	42	IORDY
18	A2	43	N/C
19	A1	44	VCC
20	A0	45	ACTIVE#
21	D0	46	PDIAG#
22	D1	47	D8
23	D2	48	D9
24	N/C	49	D10
25	PULL DOWN	50	GROUND

➔ **DIO1: Digital I/O Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+5V
3	INPUT0	4	OUTPUT0
5	INPUT1	6	OUTPUT1
7	INPUT2	8	OUTPUT2
9	INPUT3	10	OUTPUT3

➔ **CPU_FAN1 and SYS_FAN1: Fan Connectors**

PIN NO.	DESCRIPTION
1	GND
2	+12V
3	Sense

➔ **FDD1: FDD Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	RWC0-
3	GND	4	NC
5	NC	6	NC
7	GND	8	INDEX-
9	GND	10	MO-A
11	GND	12	DS-B
13	GND	14	DS-A
15	GND	16	MO-B
17	GND	18	DIR-
19	GND	20	STEP-
21	GND	22	WD-
23	GND	24	WGATE-
25	GND	26	TRK0-
27	GND	28	WP-
29	GND	30	RDATA-
31	GND	32	HEAD-
33	GND	34	DSKCHG-

➔ F_PANEL1: Front Panel Connector

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	Power LED+	2	Speaker+
3	NC	4	NC
5	Power LED-	6	NC
7	Power Button-	8	Speaker-
9	Power Button+	10	NC
11	IDE LED+	12	Reset Button+
13	IDE LED-	14	Reset Button-
15	CF LED+	16	LAN_ACT LED+
17	CF LED-	18	LAN_ACT LED-

➔ IDE1: IDE Interface Connector

PIN	DESCRIPTION	PIN	DESCRIPTION
1	RESET#	2	GND
3	DATA 7	4	DATA 8
5	DATA 6	6	DATA 9
7	DATA 5	8	DATA 10
9	DATA 4	10	DATA 11
11	DATA 3	12	DATA 12
13	DATA 2	14	DATA 13
15	DATA 1	16	DATA 14
17	DATA 0	18	DATA 15
19	GND	20	(KEY)
21	DRQ	22	GND
23	IOW#	24	GND
25	IOR#	26	GND
27	CHRDY	28	GND
29	DACK	30	GND
31	INTERRUPT	32	N/C
33	SA1	34	P66DET
35	SA0	36	SA2

37	HDC CS0#	38	HDC CS1#
39	HDD ACTIVE#	40	GND
41	+5V	42	+5V
43	GND	44	NC

➔ **IR1: Infrared Interface Connector**

PIN NO.	DESCRIPTION
1	VCC
2	NC
3	IR-RX
4	GND
5	IR-TX

➔ **PW1: ATX Power Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	3.3V	13	3.3V
2	3.3V	14	-12V
3	GND	15	GND
4	5V	16	PS_ON
5	GND	17	GND
6	5V	18	GND
7	GND	19	GND
8	NC	20	NC
9	5VSB	21	5V
10	12V	22	5V
11	12V	23	5V
12	3.3V	24	GND

➔ **SATA1, SATA2, SATA3, SATA4: SATA Connectors**

PIN NO.	DESCRIPTION
1	GND
2	TXP
3	TXN

4	GND
5	RXN
6	RXP
7	GND

➔ **CN7: SDSM Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC3	2	GND
3	3V_DUAL	4	SDSMIO1
5	VCC5	6	SDSMIO0
7	PCIRST#	8	SDSMI1
9	SMBCLK	10	SDSMI0
11	SMBDATA	12	NC

➔ **CN6 : Serial port (COM5 and COM6) and Indicators (for COM1-COM4) Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DCD5	14	DSR5
2	RXD5	15	RTS5
3	TXD5	16	CTS5
4	DTR5	17	RI5
5	GND	18	GND
6	DCD6	19	DSR6
7	RXD6	20	RTS6
8	TXD6	21	CTS6
9	DTR6	22	RI6
10	COM1_RI_LED12	23	COM2_RI_LED12
11	COM1_RI_LED5	24	COM2_RI_LED5
12	COM3_RI_LED12	25	COM4_IR_LED12
13	COM3_RI_LED5	26	COM4_RI_LED5

➔ **USB2 and USB3: USB Connectors**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	2	GND
3	DATA0-	4	DATA1+
5	DATA0+	6	DATA1-
7	GND	8	VCC

➔ **CN3 and CN4: RJ-12 Cash Drawer Connectors**

PIN NO.	DESCRIPTION
1	GND
2	CASH_1 (Digital out programmable)
3	Digital In
4	+12V
5	NC
6	GND

THIS PAGE IS INTENTIONALLY LEFT BLANK

Appendix

C

BIOS Menu Options

C.1 BIOS Configuration Options

Below is a list of BIOS configuration options described in **Chapter 5**.

System Overview 44
System Time [xx:xx:xx] 45
System Date [xx/xx/xx] 45
ATA/IDE Configurations [Enhanced] 48
IDE Master and IDE Slave 49
SATA Controller Mode Select [IDE] 49
Auto-Detected Drive Parameters 50
Type [Auto] 51
ZIP 51
LS-120 51
LBA/Large Mode [Auto] 51
Block (Multi Sector Transfer) [Auto] 52
PIO Mode [Auto] 52
DMA Mode [Auto] 53
S.M.A.R.T [Auto] 53
32Bit Data Transfer [Enabled] 53
Serial Port1 Address [3F8/IRQ4] 54
Serial Port1 Mode [Normal] 55
Serial Port2 Address [2F8/IRQ3] 55
Serial Port2 Mode [Normal] 55
Parallel Port Address [378] 56
Parallel Port Mode [Normal] 56
Parallel Port IRQ [IRQ7] 57
Serial Port3 Address [3E8] 57
Serial Port3 IRQ [10] 57
Serial Port4 Address [2E8] 57
Serial Port4 IRQ [10] 58
Serial Port5 Address [2F0] 58

Serial Port5 IRQ [10] 58
Serial Port6 Address [2E0] 58
Serial Port6 IRQ [10] 59
FAN Mode Setting [Full On Mode] 59
Remote Access [Disabled] 61
Serial Port Number 62
Serial Port Mode 62
Redirection after BIOS POST 62
Terminal Type 62
Serial Port Number [COM1] 62
Base Address, IRQ [3F8h, 4] 62
Serial Port Mode [115200 8,n,1] 62
Redirection After BIOS POST [Always] 63
Terminal Type [ANSI] 63
USB Configuration 64
USB Devices Enabled 64
USB Function [Enabled] 64
USB 2.0 Controller [Enabled] 65
Legacy USB Support [Enabled] 65
USB2.0 Controller Mode [HiSpeed] 65
USB Mass Storage Reset Delay [20 Sec] 66
Device ## 67
Emulation Type [Auto] 67
IRQ# [Available] 69
DMA Channel# [Available] 69
Reserved Memory Size [Disabled] 70
Quick Boot [Enabled] 72
Quiet Boot [Disabled] 72
AddOn ROM Display Mode [Keep Current] 73
Bootup Num-Lock [On] 73
LAN Boot [Disabled] 73

Change Supervisor Password 75
Change User Password 75
Clear User Password 76
Memory Hole [Disabled] 77
Boots Graphics Adapter Priority [PEG/PCI] 78
Internal Graphics Mode Select [Enable, 8MB] 78
Aperture Size Select [256MB] 78
Spectrum [Disabled] 79
Azalia/AC97 Selection [Enabled] 79
Cash drawer control [Enabled] 80
Power Button Mode [On/Off] 81
Restore on AC Power Loss [Last State] 81
Power Type [by H/W] 81
PME Resume on [Enabled] 81
RTC Resume [Disabled] 82
RTC Alarm Date (Days) 82
System Time 82
Resume on Keyboard/Mouse [Disabled] 82
Save Changes and Exit 83
Discard Changes and Exit 83
Discard Changes 84
Load Optimal Defaults 84
Load Failsafe Defaults 84

Appendix

D

Watchdog Timer

NOTE:

The following discussion applies to DOS environment. IEI support is contacted or the IEI website visited for specific drivers for more sophisticated operating systems, e.g., Windows and Linux.

The Watchdog Timer is provided to ensure that standalone systems can always recover from catastrophic conditions that cause the CPU to crash. This condition may have occurred by external EMI or a software bug. When the CPU stops working correctly, Watchdog Timer either performs a hardware reset (cold boot) or a Non-Maskable Interrupt (NMI) to bring the system back to a known state.

A BIOS function call (INT 15H) is used to control the Watchdog Timer:

INT 15H:

AH – 6FH Sub-function:	
AL – 2:	Sets the Watchdog Timer's period.
BL:	Time-out value (Its unit-second is dependent on the item "Watchdog Timer unit select" in CMOS setup).

Table D-1: AH-6FH Sub-function

Call sub-function 2 to set the time-out period of Watchdog Timer first. If the time-out value is not zero, the Watchdog Timer starts counting down. While the timer value reaches zero, the system resets. To ensure that this reset condition does not occur, calling sub-function 2 must periodically refresh the Watchdog Timer. However, the Watchdog timer is disabled if the time-out value is set to zero.

A tolerance of at least 10% must be maintained to avoid unknown routines within the operating system (DOS), such as disk I/O that can be very time-consuming.

NOTE:

When exiting a program it is necessary to disable the Watchdog Timer, otherwise the system resets.

Example program:

```
; INITIAL TIMER PERIOD COUNTER
;
W_LOOP:

        MOV     AX, 6F02H       ;setting the time-out value
        MOV     BL, 30          ;time-out value is 48 seconds
        INT      15H
 ;
; ADD THE APPLICATION PROGRAM HERE
;
        CMP      EXIT_AP, 1     ;is the application over?
        JNE      W_LOOP         ;No, restart the application

        MOV     AX, 6F02H       ;disable Watchdog Timer
        MOV     BL, 0           ;
        INT      15H
;
; EXIT ;
```

THIS PAGE IS INTENTIONALLY LEFT BLANK

Appendix

E

Address Mapping

E.1 IO Address Map

I/O address Range	Description
000-01F	DMA Controller
020-021	Interrupt Controller
040-043	System time
060-06F	Keyboard Controller
070-07F	System CMOS/Real time Clock
080-09F	DMA Controller
0A0-0A1	Interrupt Controller
0C0-0DF	DMA Controller
0F0-0FF	Numeric data processor
1F0-1F7	Primary IDE Channel
2F8-2FF	Serial Port 2 (COM2)
378-37F	Parallel Printer Port 1 (LPT1)
3B0-3BB	Graphics Controller
3C0-3DF	Graphics Controller
3F6-3F6	Primary IDE Channel
3F7-3F7	Standard floppy disk controller
3F8-3FF	Serial Port 1 (COM1)

Table E-1: IO Address Map

E.2 1st MB Memory Address Map

Memory address	Description
00000-9FFFF	System memory
A0000-BFFFF	VGA buffer
F0000-FFFFF	System BIOS
1000000-	Extend BIOS

Table E-2: 1st MB Memory Address Map

E.3 IRQ Mapping Table

IRQ0	System Timer	IRQ8	RTC clock
IRQ1	Keyboard	IRQ9	ACPI
IRQ2	Available	IRQ10	COM3/4/5/6
IRQ3	COM2	IRQ11	LAN/USB2.0/SATA
IRQ4	COM1	IRQ12	PS/2 mouse
IRQ5	SMBus Controller	IRQ13	FPU
IRQ6	FDC	IRQ14	Primary IDE
IRQ7	Parallel Port	IRQ15	Secondary IDE

Table E-3: IRQ Mapping Table

E.4 DMA Channel Assignments

Channel	Function
0	Available
1	Available
2	Floppy disk (8-bit transfer)
3	Available
4	Cascade for DMA controller 1
5	Available
6	Available
7	Available

Table E-4: DMA Channel Assignments Table

THIS PAGE IS INTENTIONALLY LEFT BLANK

Appendix

F

Hazardous Materials Disclosure

F.1 Hazardous Material Disclosure Table for IPB Products Certified as RoHS Compliant Under 2002/95/EC Without Mercury

The details provided in this appendix are to ensure that the product is compliant with the Peoples Republic of China (China) RoHS standards. The table below acknowledges the presences of small quantities of certain materials in the product, and is applicable to China RoHS only.

A label will be placed on each product to indicate the estimated “Environmentally Friendly Use Period” (EFUP). This is an estimate of the number of years that these substances would “not leak out or undergo abrupt change.” This product may contain replaceable sub-assemblies/components which have a shorter EFUP such as batteries and lamps. These components will be separately marked.

Please refer to the table on the next page.

Part Name	Toxic or Hazardous Substances and Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (CR(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
Housing	x	O	O	O	O	x
Display	X	O	O	O	O	X
Printed Circuit Board	X	O	O	O	O	X
Metal Fasteners	X	O	O	O	O	O
Cable Assembly	X	O	O	O	O	X
Fan Assembly	X	O	O	O	O	X
Power Supply Assemblies	X	O	O	O	O	X
Battery	O	O	O	O	O	O

O: This toxic or hazardous substance is contained in all of the homogeneous materials for the part is below the limit requirement in SJ/T11363-2006

X: This toxic or hazardous substance is contained in at least one of the homogeneous materials for this part is above the limit requirement in SJ/T11363-2006

此附件旨在确保本产品符合中国 RoHS 标准。以下表格标示此产品中某有毒物质的含量符合中国 RoHS 标准规定的限量要求。

本产品上会附有"环境友好使用期限"的标签，此期限是估算这些物质"不会有泄漏或突变"的年限。本产品可能包含有较短的环境友好使用期限的可替换元件，像是电池或灯管，这些元件将会单独标示出来。

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (CR(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
壳体	X	O	O	O	O	X
显示	X	O	O	O	O	X
印刷电路板	X	O	O	O	O	X
金属螺帽	X	O	O	O	O	O
电缆组装	X	O	O	O	O	X
风扇组装	X	O	O	O	O	X
电力供应组装	X	O	O	O	O	X
电池	O	O	O	O	O	O

O: 表示该有毒有害物质在该部件所有物质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。

X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11363-2006 标准规定的限量要求。

Appendix

G

JMicron RAID

G.1 Introduction

The JMicron JMB363 SATA RAID chipset can control parallel ATA (PATA) and SATA disks. The JMicron controller supports PATA UDMA transfer modes up to mode 6 and SATA II disk drives. The JMicron JMB363's RAID functionality can increase the data read/write speed (RAID 0) or provide data protection by mirroring drive data (RAID 1).

CAUTION!

A configured RAID volume (which may consist of multiple hard drives) appears to an operating system as a contingent storage space. The operating system will not be able to distinguish the physical disk drives contained in a RAID configuration.

G.1.1 Precautions

One key benefit a RAID 1 configuration brings is that a single hard drive can fail within a RAID array without damaging data. With a RAID 1 array, a failed drive can be replaced and the RAID configuration restored. Total data loss occurs when one drive fails in a RAID 0 array.

WARNING!

Irrecoverable data loss occurs if a working drive is removed when trying to remove a failed drive. It is strongly recommended to mark the physical connections of all SATA disk drives. Drive locations can be identified by attaching stickers to the drive bays. If a drive member of a RAID array should fail, the failed drive can then be correctly identified.

CAUTION!

Do not accidentally disconnect the SATA drive cables. Carefully route the cables within the chassis to avoid system down time.

G.2 Features and Benefits

- Supports RAID levels 0, 1, and JBOD
- Supports connectivity to two disk drives
- Supported Operating Systems include: Windows 2000, Windows XP, Fedora and Red Hat Linux
- Graphical software for RAID management in Windows

G.3 Accessing the JMicron RAID Utility

To access the **JMicron RAID Utility**, please follow the steps below:

Step 1: Connect two SATA drives to the system. Ideally the two drives should be identical, but two non-identical drives will work too.

NOTE:

Make sure the SATA drives are EXACTLY the same when they are configured in a RAID configuration (JBOD, RAID 0 or RAID 1). If they are not the same size, disk drive capacity is sacrificed and overall performance affected.

Step 2: **Enable SATA drives in BIOS**. Start the computer and access the **AMI BIOS** setup program. Next, open the **Advanced CMOS Setup** menu. Go to the IDE configuration menu. Set “Sec, SATA controller mode” to [RAID]. To enable the system to boot from the SATA drives, go to the BOOT menu and set “Boot from SATA function” to [ENABLED].

Step 3: Save and Exit the BIOS.

Step 4: Reboot the system.

Step 5: The following screen appears. Press **Ctrl-J** to enter the **JMicron RAID BIOS** setup program.

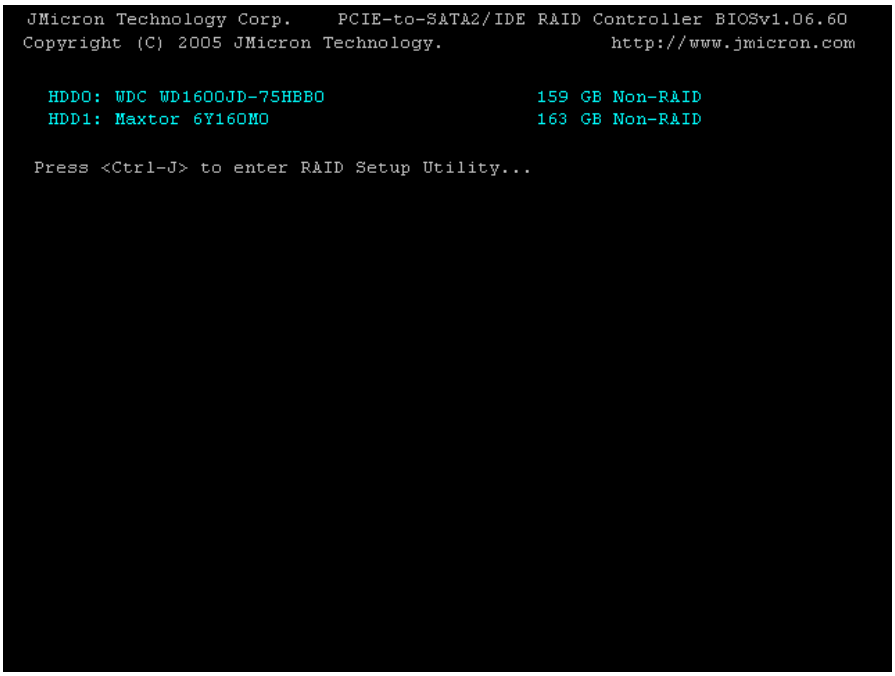

JMicron Technology Corp. PCIE-to-SATA2/IDE RAID Controller BIOSv1.06.60
Copyright (C) 2005 JMicron Technology. http://www.jmicron.com
HDD0: WDC WD1600JD-75HBB0 159 GB Non-RAID
HDD1: Maxtor 6Y160M0 163 GB Non-RAID
Press <Ctrl-J> to enter RAID Setup Utility...

Figure G-1: Accessing JMicron RAID BIOS Utility

Step 6: The main menu appears. The top left block gives menu options, the top right block lists your hard drives and the bottom block shows your RAID drives.

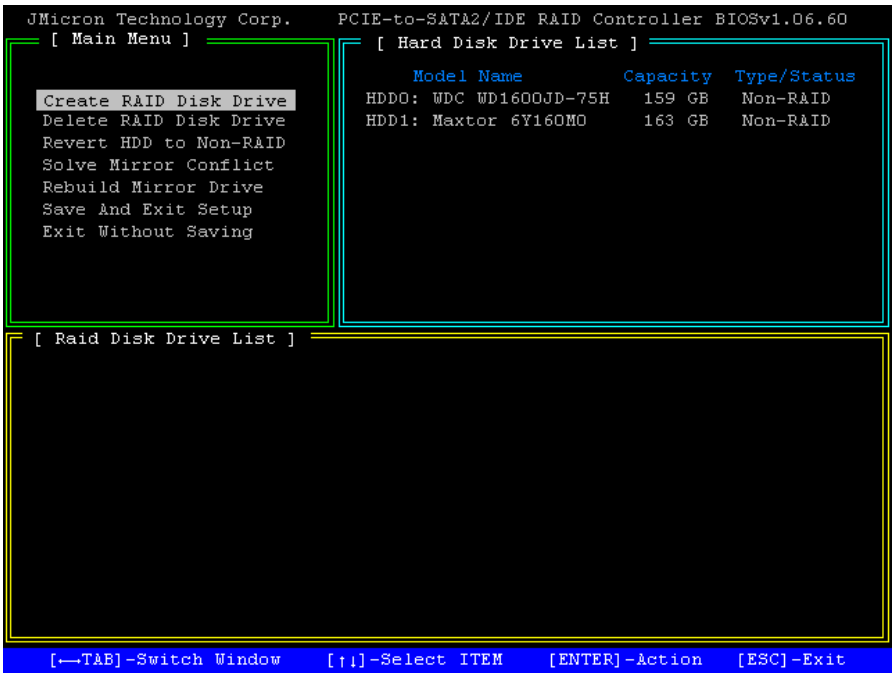


Figure G-2: Accessing JMicron RAID BIOS Utility

G.4 Creating a RAID Array

To create a new RAID array, please follow the steps below:

Step 1: Highlight the “Create RAID Disk Drive” menu option and press ENTER.

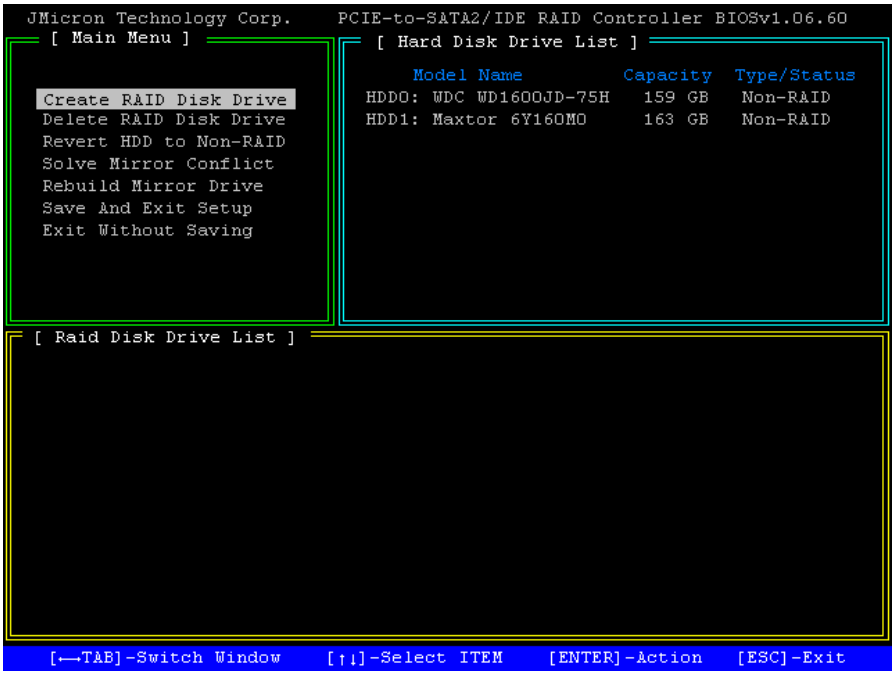


Figure G-3: Select “Create RAID Disk Array”

Step 2: The RAID creation menu appears.

Step 3: Choose a label for the new RAID array. The label must be from 1 to 16 characters long and is used to identify your RAID array in the BIOS and OS. This label can be changed later if necessary. Press ENTER to continue.

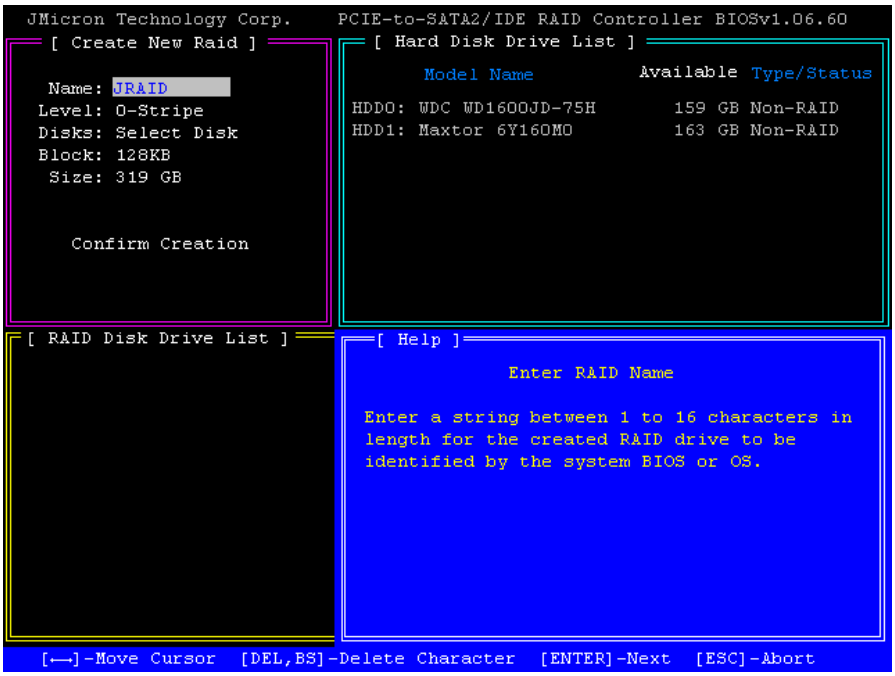

JMicron Technology Corp.
PCIE-to-SATA2/IDE RAID Controller BIOSv1.06.60
[Create New Raid]
Name: JRAID
Level: 0-Stripe
Disks: Select Disk
Block: 128KB
Size: 319 GB
Confirm Creation
[Hard Disk Drive List]
Model Name
Available Type/Status
HDD0: WDC WD1600JD-75H
159 GB Non-RAID
HDD1: Maxtor 6Y160M0
163 GB Non-RAID
[RAID Disk Drive List]
[Help]
Enter RAID Name
Enter a string between 1 to 16 characters in length for the created RAID drive to be identified by the system BIOS or OS.
[←→]-Move Cursor [DEL,BS]-Delete Character [ENTER]-Next [ESC]-Abort

Figure G-4: Choose RAID Name

Step 4: Select the type of RAID array. RAID 0, RAID 1 and JBOD are supported. Refer to G.11 for information on RAID levels. Use the up and down arrows to change, and press ENTER to continue.

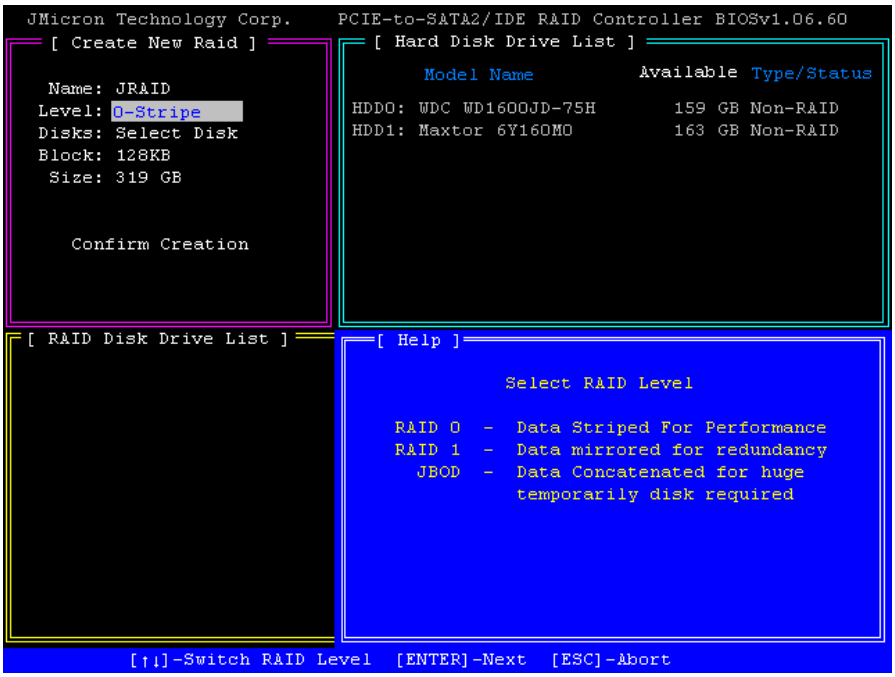


Figure G-5: Select RAID Type

Step 5: Select the hard disks to use for the new RAID array. Use the arrow keys to highlight the drives, and use SPACE to select it. A selected drive will have a green triangle next to it. Select both hard disks. Press ENTER to continue.

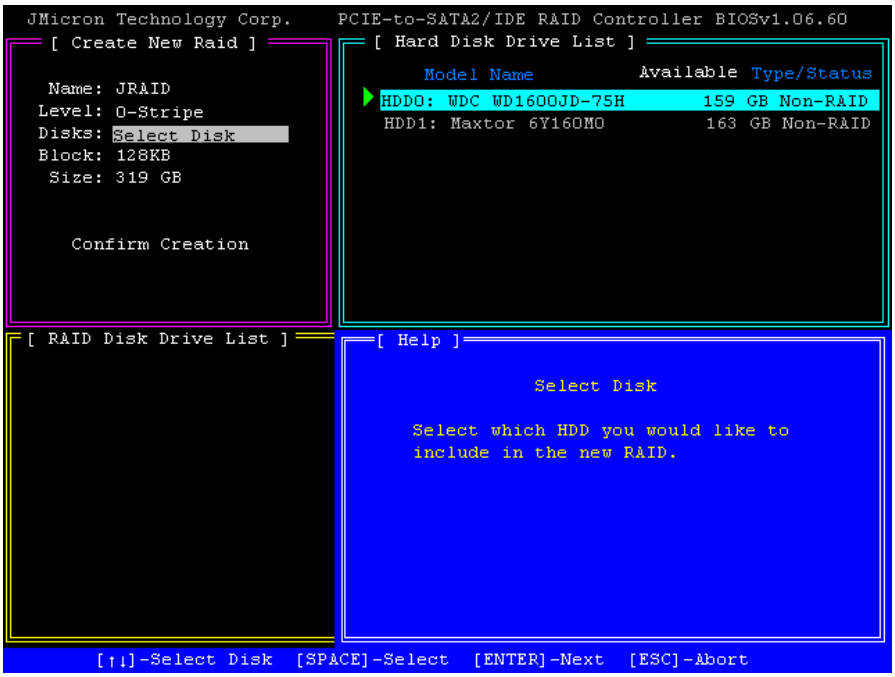


Figure G-6: Select Drives for RAID Array

Step 6: Select the block size to be used on the new drive. If unsure, don't change it.

Press ENTER to continue.

Figure G-7: Select Block Size

Step 7: Choose the size of the new RAID array. By default the largest size possible is chosen. If a smaller size is chosen, the extra space on the drives will not be used. Press ENTER to continue.

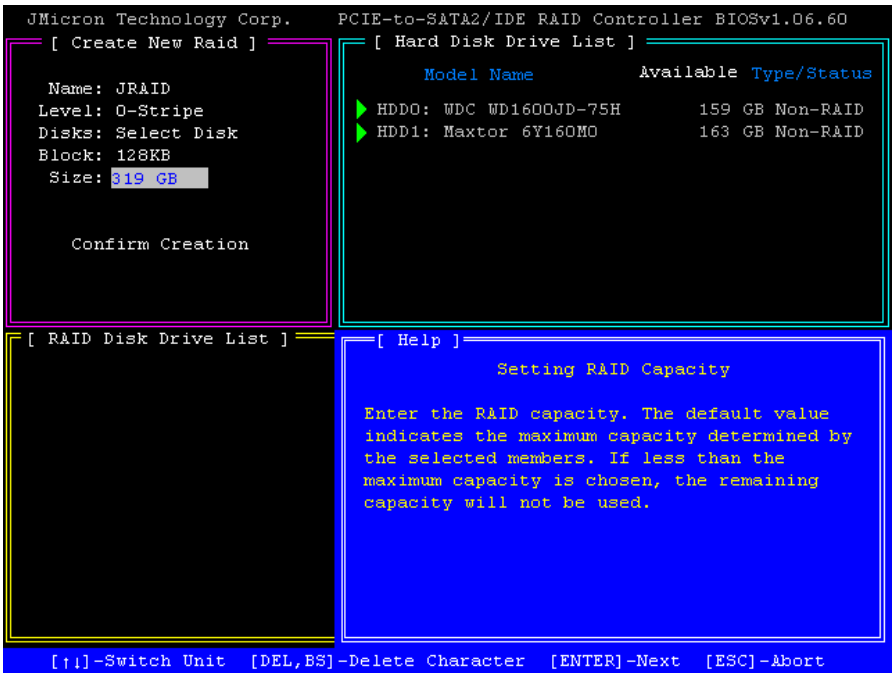

JMicron Technology Corp.
PCIE-to-SATA2/IDE RAID Controller BIOSv1.06.60
[Create New Raid]
Name: JRAID
Level: 0-Stripe
Disks: Select Disk
Block: 128KB
Size: 319 GB
Confirm Creation
[Hard Disk Drive List]
Model Name
Available Type/Status
HDD0: WDC WD1600JD-75H 159 GB Non-RAID
HDD1: Maxtor 6Y160M0 163 GB Non-RAID
[RAID Disk Drive List]
[Help]
Setting RAID Capacity
Enter the RAID capacity. The default value indicates the maximum capacity determined by the selected members. If less than the maximum capacity is chosen, the remaining capacity will not be used.
[↑↓]-Switch Unit [DEL,BS]-Delete Character [ENTER]-Next [ESC]-Abort

Figure G-8: Choose Drive Size

Step 8: A confirmation block will appear. Type Y to create the new RAID array, or N to return to the main menu.

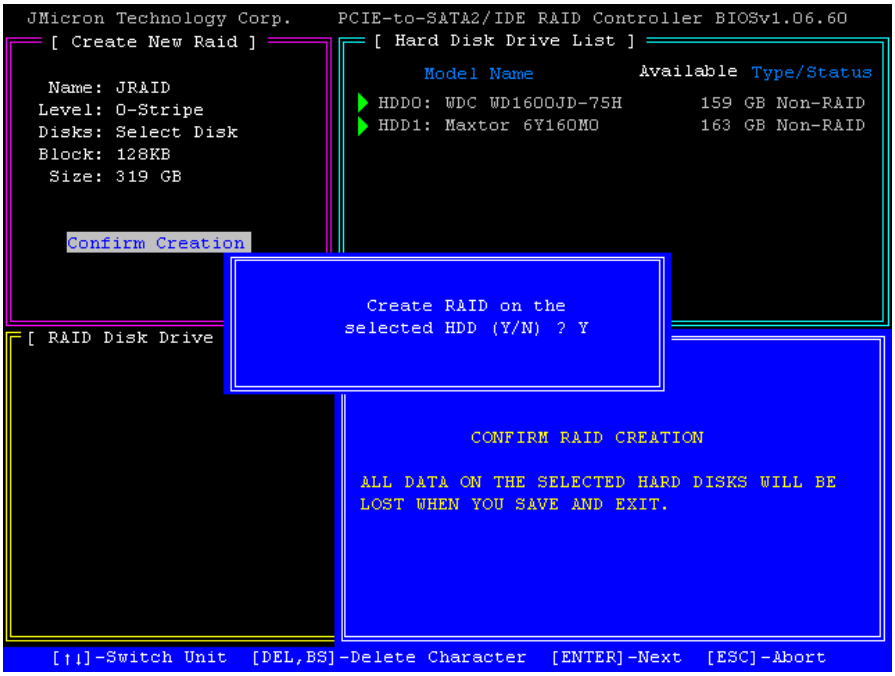


Figure G-9: Confirm RAID Creation

G.5 Deleting a RAID Array

To delete a RAID array, please follow the steps below:

Step 1: Highlight the “Delete RAID Disk Drive” menu option and press ENTER.

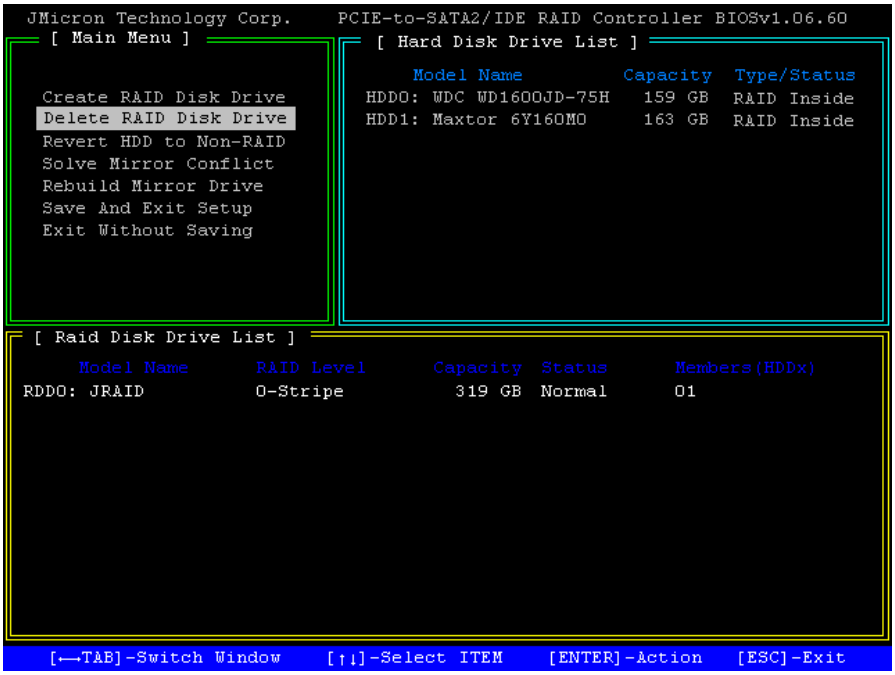


Figure G-10: Select “Delete RAID Disk Array”

Step 2: Highlight the RAID array to be deleted. Press SPACE to mark it for deletion. Press DEL to confirm deletion.

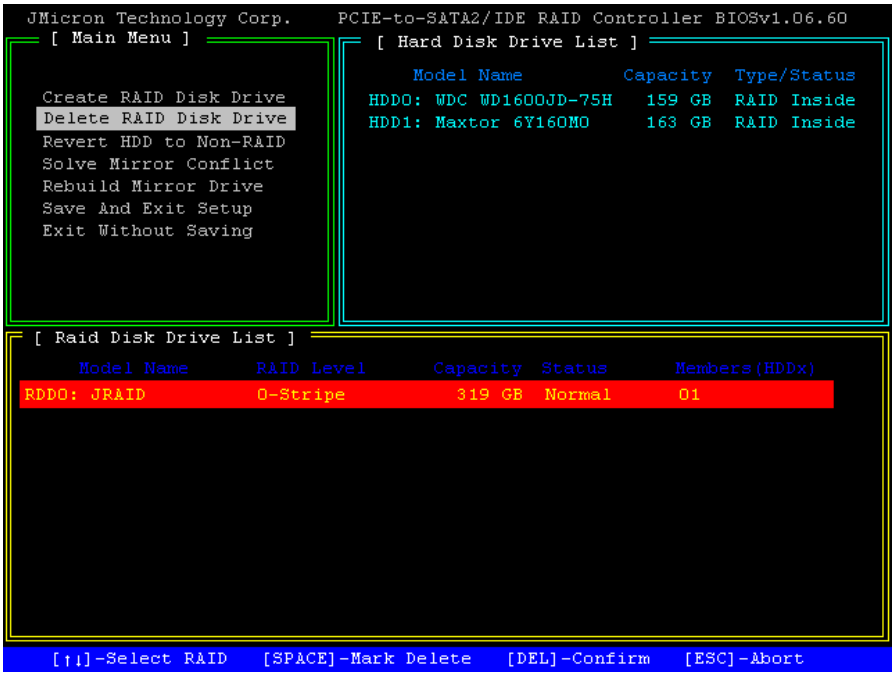

JMicron Technology Corp.
PCIE-to-SATA2/IDE RAID Controller BIOSv1.06.60
[Main Menu]
Create RAID Disk Drive
Delete RAID Disk Drive
Revert HDD to Non-RAID
Solve Mirror Conflict
Rebuild Mirror Drive
Save And Exit Setup
Exit Without Saving
[Hard Disk Drive List]
Model Name Capacity Type/Status
HDD0: WDC WD1600JD-75H 159 GB RAID Inside
HDD1: Maxtor 6Y160M0 163 GB RAID Inside
[Raid Disk Drive List]
Model Name RAID Level Capacity Status Members(HDDx)
RDD0: JRAID 0-Stripe 319 GB Normal 01
[↑↓]-Select RAID [SPACE]-Mark Delete [DEL]-Confirm [ESC]-Abort

Figure G-11: Choose RAID Array

Step 3: Confirm deletion again. Remember that all data will be lost. Press Y to delete the array, or N to go back to the main menu.

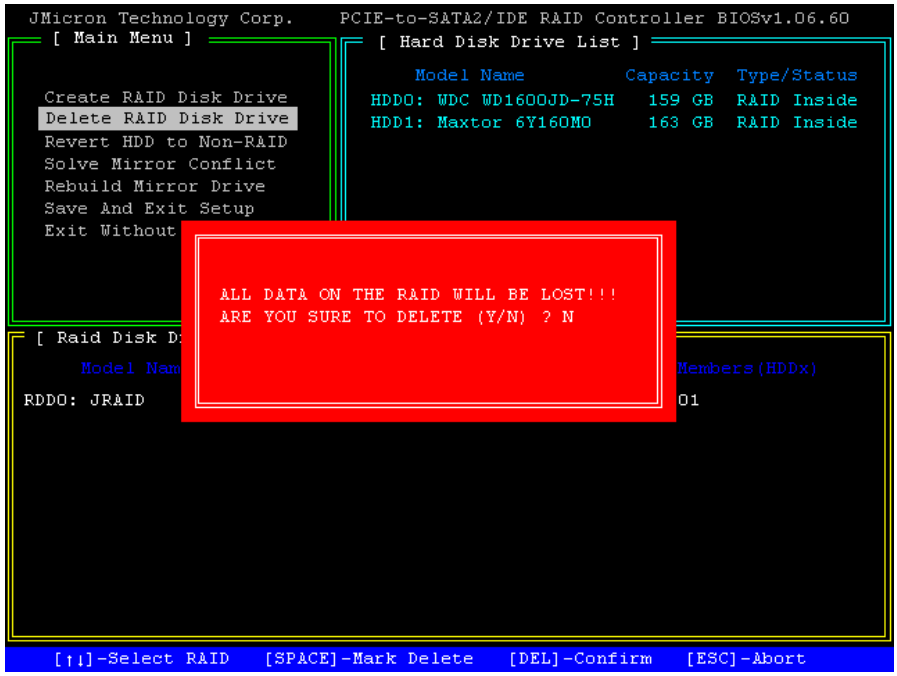


Figure G-12: Confirm Deletion

G.6 Revert a Hard Drive to Non-RAID

If one hard drive comes from another RAID array and it's been added to the system, this option will change it back into a non-RAID drive so it can be added to a new RAID array or used as a normal hard drive.

Step 1: Highlight the "Revert HDD to Non-RAID" menu option and press ENTER.

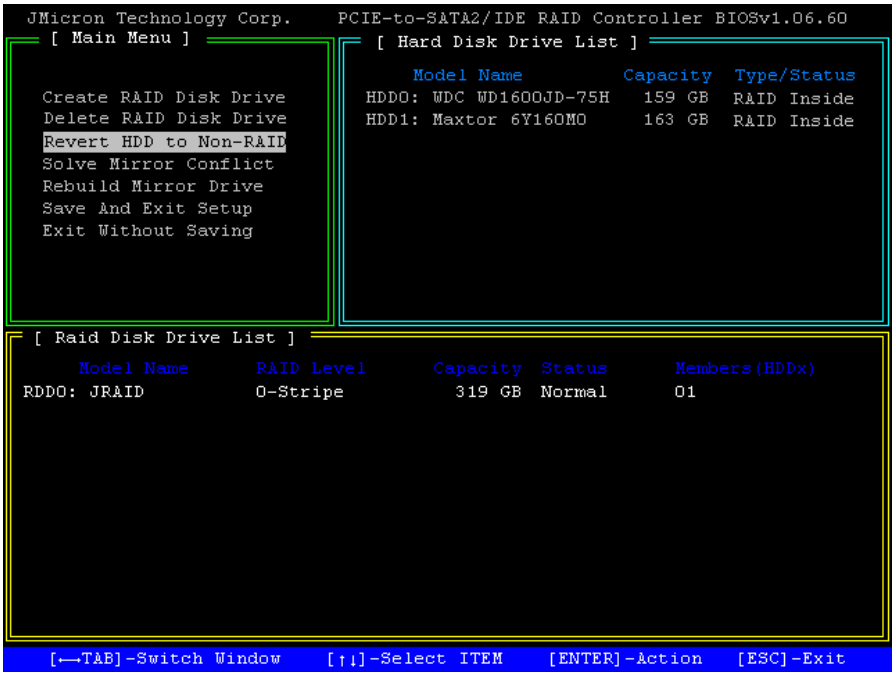


Figure G-13: Select "Revert HDD to Non-RAID"

Step 2: Highlight the drive to revert to a non-RAID disk. Press SPACE to mark it. Repeat for all the drives you want to revert to non-RAID. Press DEL to confirm.

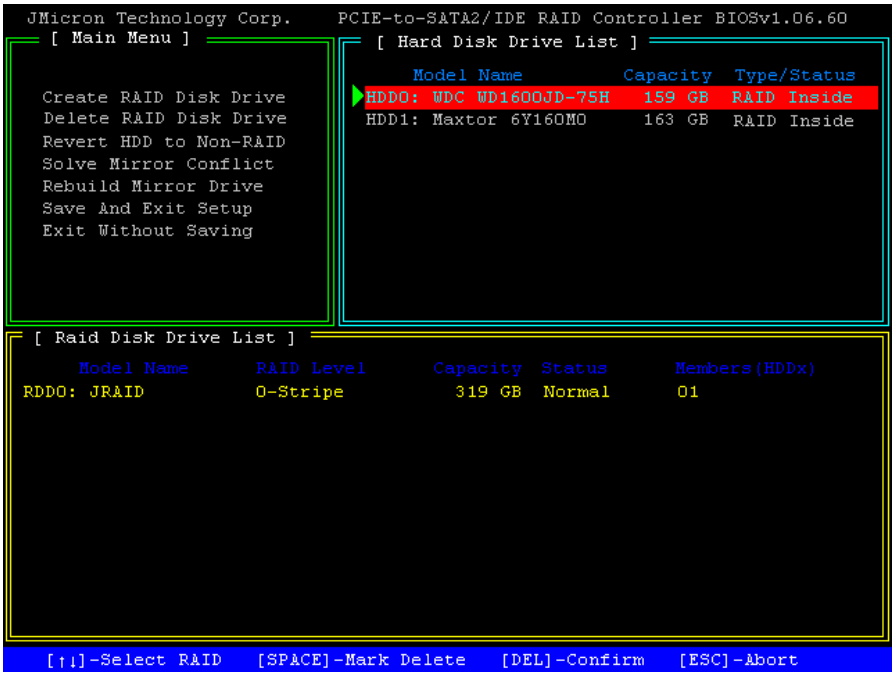


Figure G-14: Choose Drives to Revert to Non-RAID

Step 3: Confirm reversion to non-RAID. Remember that all data will be lost. Press Y to revert them, or N to go back to the main menu.

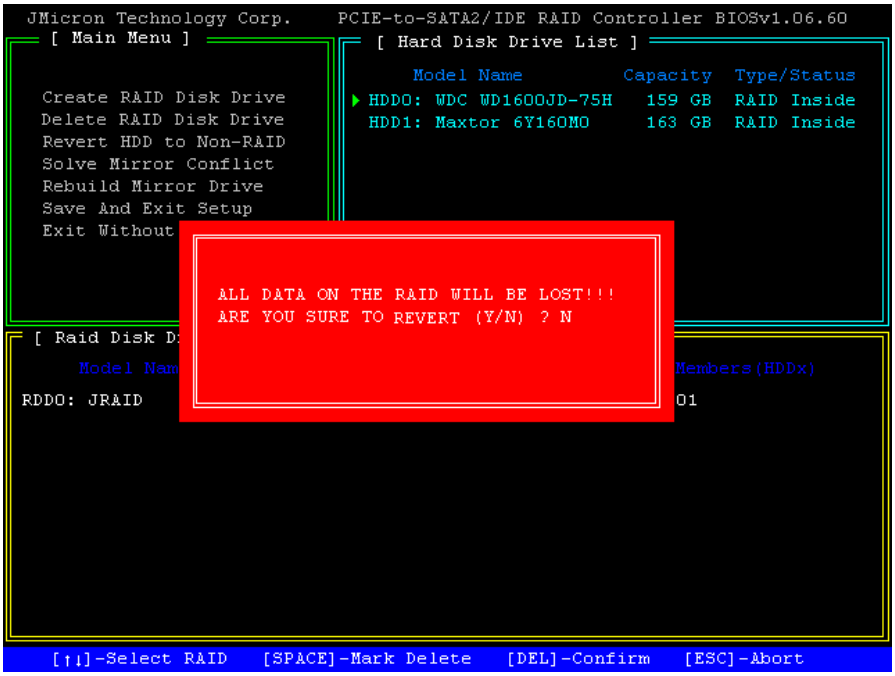


Figure G-15: Confirm Revert

G.7 Solve Mirror Conflict

If both drives are the source for a RAID array the BIOS recognizes them as two separate drives. Choosing one drive as the source and rebuilding the RAID array from that source drive solves this situation. This only applies to RAID 1.

Step 1: Highlight the “Solve Mirror Conflict” menu option and press ENTER.

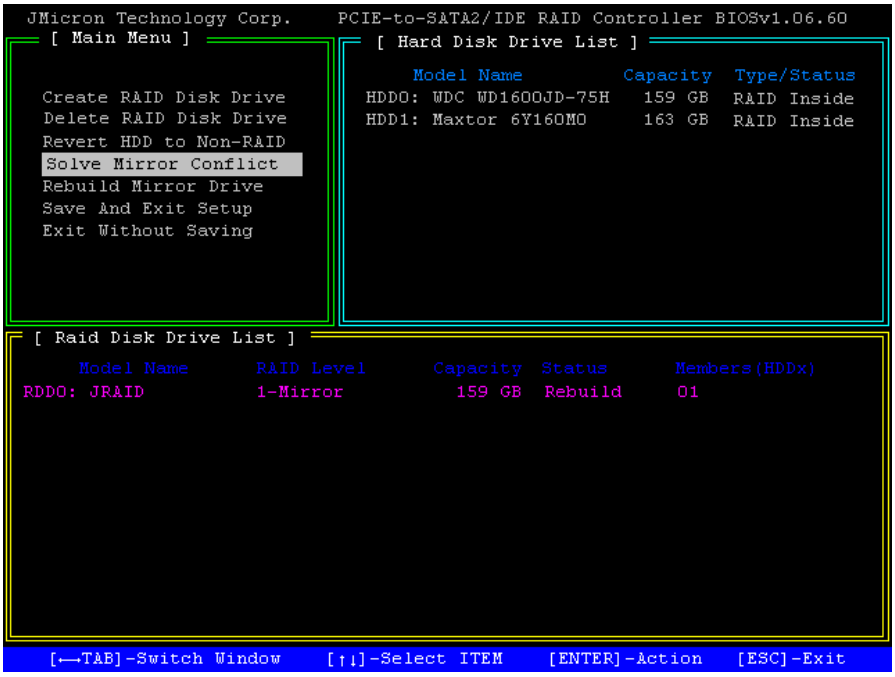


Figure G-16: Select “Solve Mirror Conflict”

Step 2: Select the source drive, and then the mirror drive can be rebuilt. The source drive is the working drive with your data.

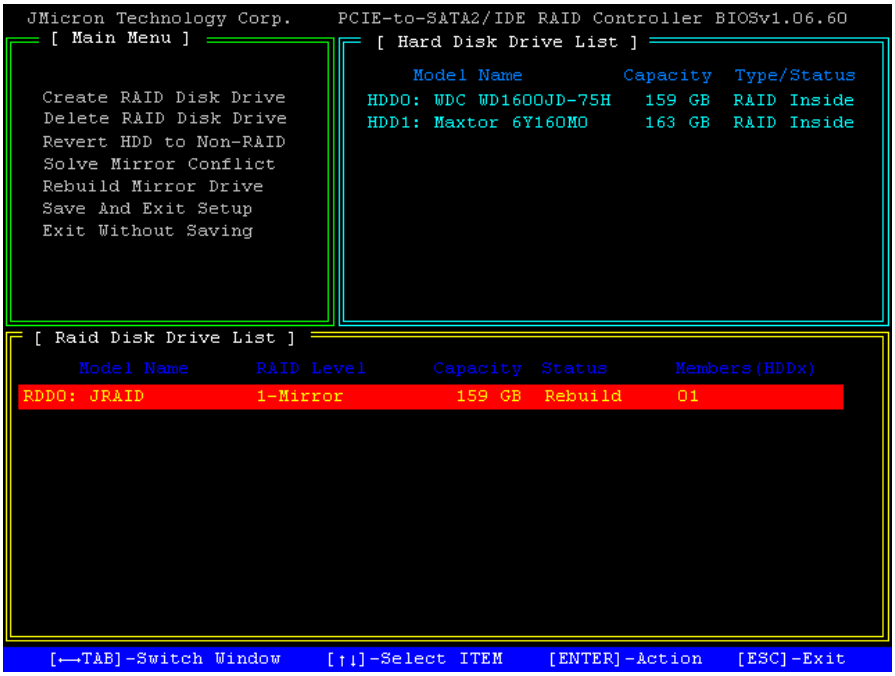

JMicron Technology Corp.
PCIE-to-SATA2/IDE RAID Controller BIOSv1.06.60
[Main Menu]
Create RAID Disk Drive
Delete RAID Disk Drive
Revert HDD to Non-RAID
Solve Mirror Conflict
Rebuild Mirror Drive
Save And Exit Setup
Exit Without Saving
[Hard Disk Drive List]
Model Name Capacity Type/Status
HDD0: WDC WD1600JD-75H 159 GB RAID Inside
HDD1: Maxtor 6Y160M0 163 GB RAID Inside
[Raid Disk Drive List]
Model Name RAID Level Capacity Status Members(HDDx)
RDD0: JRAID 1-Mirror 159 GB Rebuild 01
[←→TAB]-Switch Window
[↑↓]-Select ITEM
[ENTER]-Action
[ESC]-Exit

Figure G-17: Rebuild Mirror Drive

G.8 Rebuild Mirror Drive

If one of the two drives in a RAID 1 array has been replaced, the RAID drive can be rebuilt without loss of data.

Step 1: Highlight the “Rebuild Mirror Drive” menu option and press ENTER.

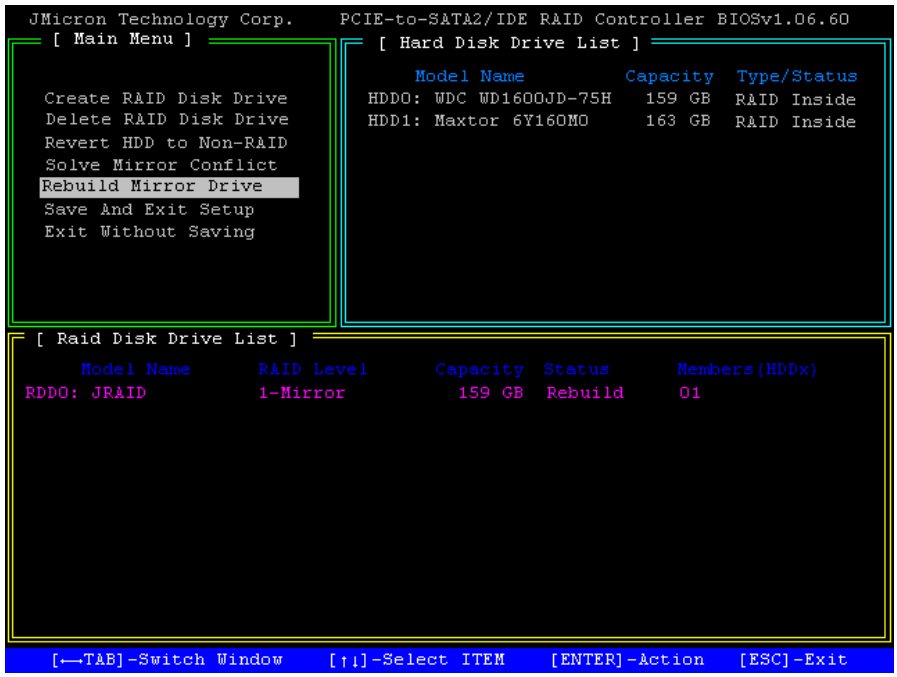


Figure G-18: Select “Rebuild Mirror Drive”

Step 2: Choose the RAID disk drive to rebuild. Press ENTER to start rebuilding.

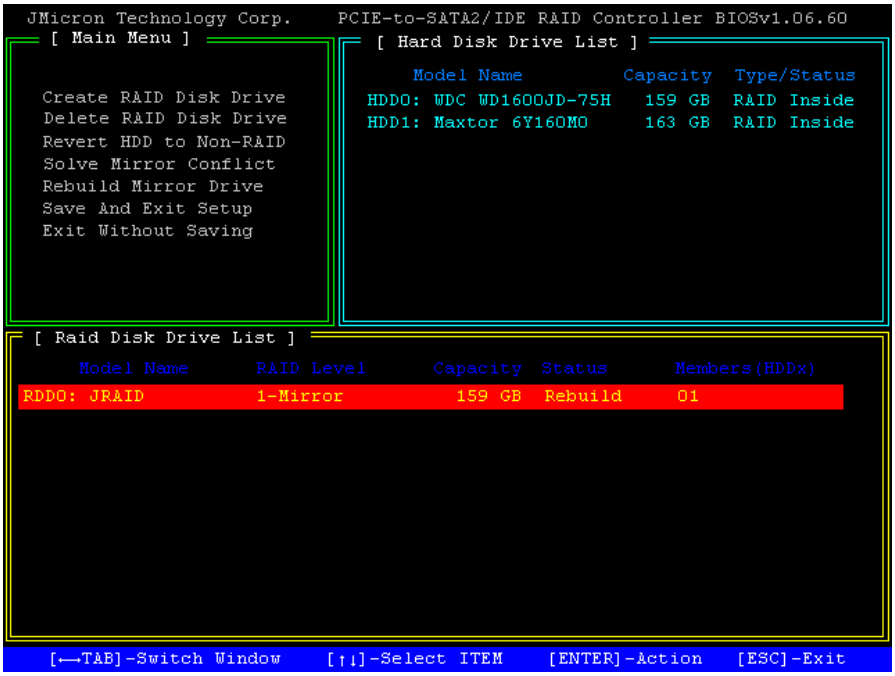

JMicron Technology Corp.
PCIE-to-SATA2/IDE RAID Controller BIOSv1.06.60
[Main Menu]
Create RAID Disk Drive
Delete RAID Disk Drive
Revert HDD to Non-RAID
Solve Mirror Conflict
Rebuild Mirror Drive
Save And Exit Setup
Exit Without Saving
[Hard Disk Drive List]
Model Name Capacity Type/Status
HDD0: WDC WD1600JD-75H 159 GB RAID Inside
HDD1: Maxtor 6Y160M0 163 GB RAID Inside
[Raid Disk Drive List]
Model Name RAID Level Capacity Status Members(HDDx)
RDD0: JRAID 1-Mirror 159 GB Rebuild 01
[←→TAB]-Switch Window [↑↓]-Select ITEM [ENTER]-Action [ESC]-Exit

Figure G-19: Rebuild Mirror Drive

Step 3: The status bar at the bottom of the screen shows rebuilding status.

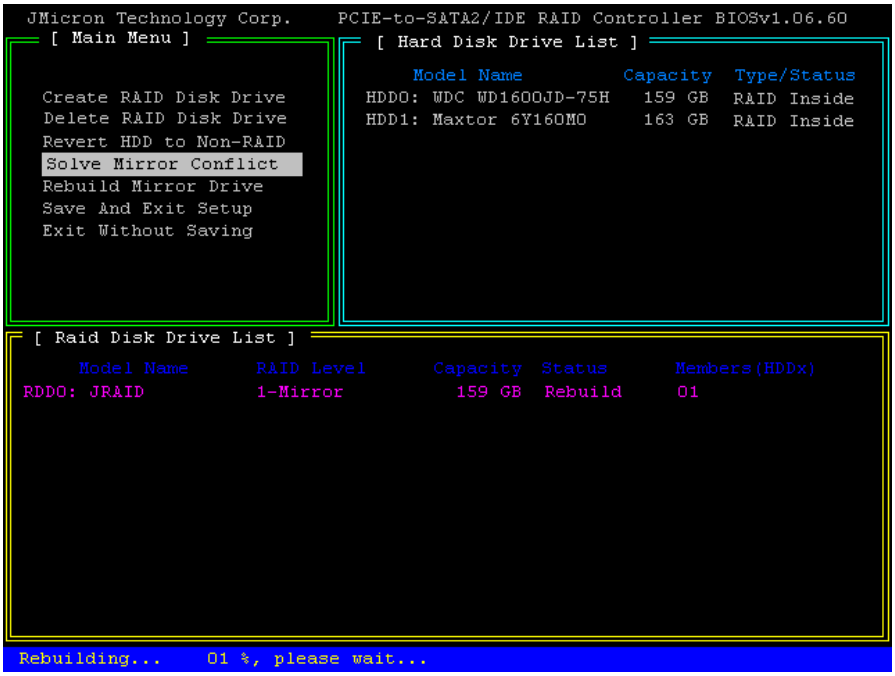

JMicron Technology Corp.
PCIE-to-SATA2/IDE RAID Controller BIOSv1.06.60
[Main Menu]
Create RAID Disk Drive
Delete RAID Disk Drive
Revert HDD to Non-RAID
Solve Mirror Conflict
Rebuild Mirror Drive
Save And Exit Setup
Exit Without Saving
[Hard Disk Drive List]
Model Name Capacity Type/Status
HDD0: WDC WD1600JD-75H 159 GB RAID Inside
HDD1: Maxtor 6Y160M0 163 GB RAID Inside
[Raid Disk Drive List]
Model Name RAID Level Capacity Status Members(HDDx)
RDD0: JRAID 1-Mirror 159 GB Rebuild 01
Rebuilding... 01 %, please wait...

Figure G-20: Rebuilding Mirror Drive

G.9 Save and Exit Setup

Save your changes and exit the JMicron BIOS setup.

Step 1: Highlight the “Save And Exit Setup” menu option and press ENTER.

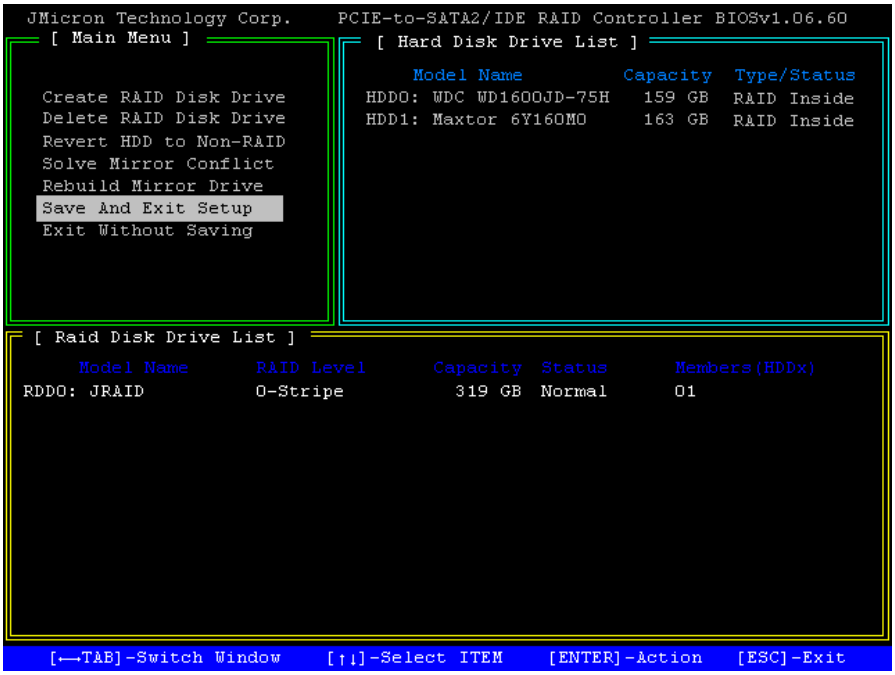


Figure G-21: Save And Exit Setup

Step 2: Press Y to save your changes and exit, or press N to go back to the Main Menu.

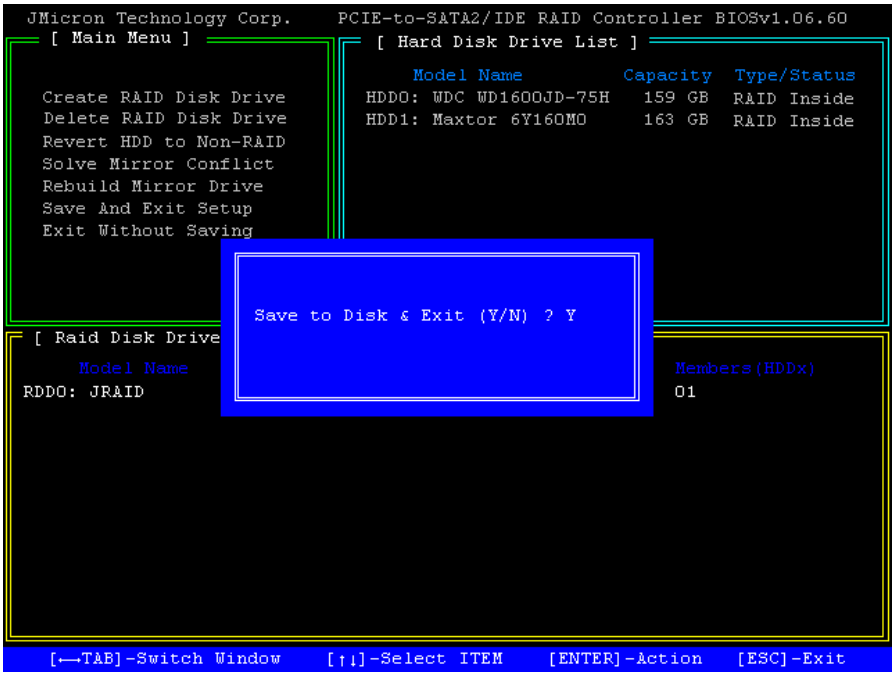


Figure G-22: Confirm Save and Exit

G.10 Exit Without Saving

Exit the BIOS setup without saving your changes. Note that this will not undo changes to the RAID arrays. All actions performed on the hard disk drives are completed when they are chosen. Choosing not to save will not recover any mistakes that were made while performing maintenance on your RAID setup.

Step 1: Highlight the "Exit Without Saving" menu option and press ENTER.

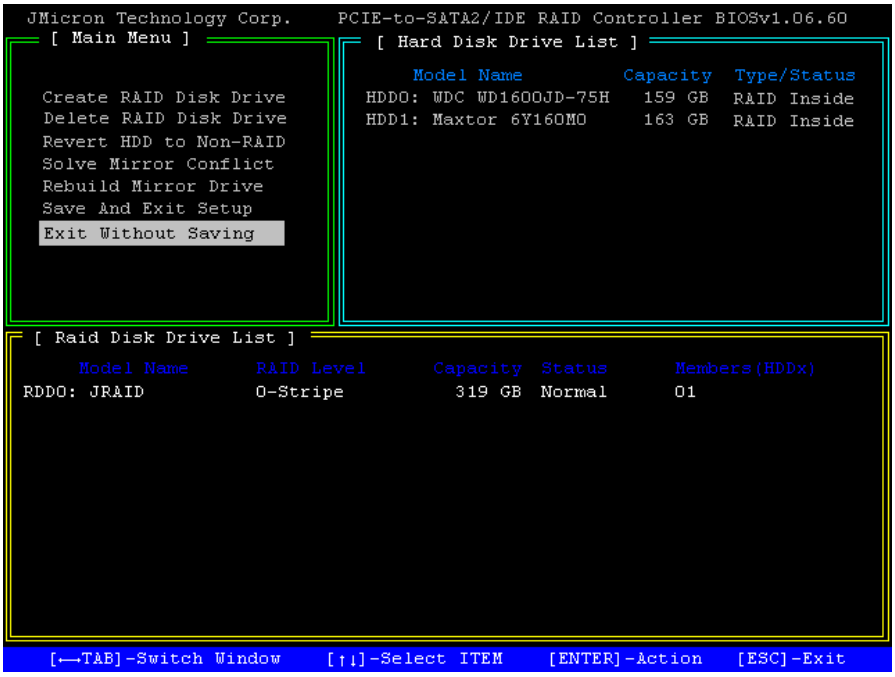
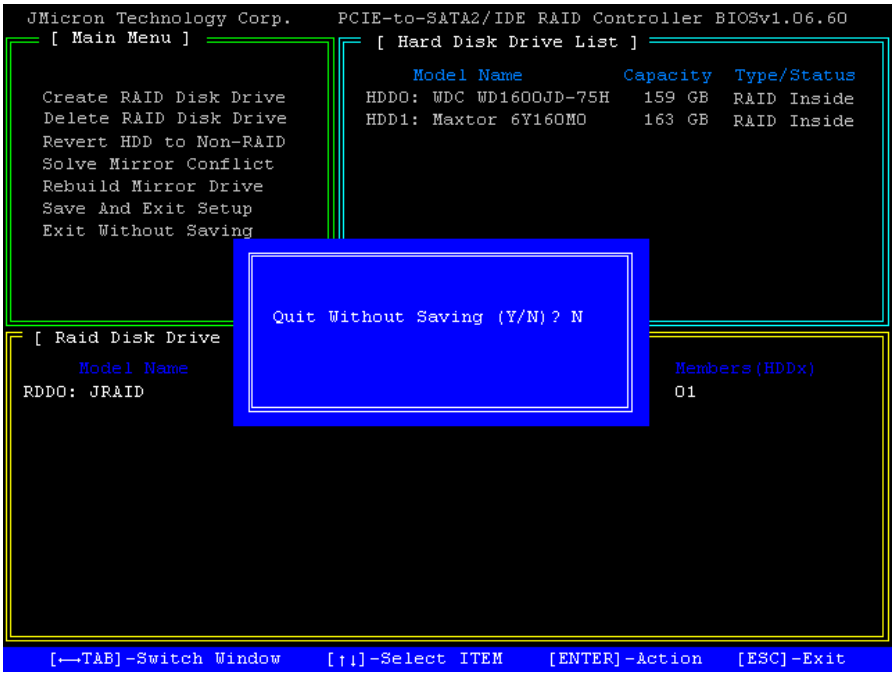

JMicron Technology Corp.
PCIE-to-SATA2/IDE RAID Controller BIOSv1.06.60
[Main Menu]
Create RAID Disk Drive
Delete RAID Disk Drive
Revert HDD to Non-RAID
Solve Mirror Conflict
Rebuild Mirror Drive
Save And Exit Setup
Exit Without Saving
[Hard Disk Drive List]
Model Name Capacity Type/Status
HDD0: WDC WD1600JD-75H 159 GB RAID Inside
HDD1: Maxtor 6Y160M0 163 GB RAID Inside
[Raid Disk Drive List]
Model Name RAID Level Capacity Status Members(HDDx)
RDD0: JRAID 0-Stripe 319 GB Normal 01
[←→TAB]-Switch Window
[↑↓]-Select ITEM
[ENTER]-Action
[ESC]-Exit

Figure G-23: Select "Exit Without Saving"

Step 2: Press Y to exit the BIOS without saving your changes, or press N to go back to the main menu.

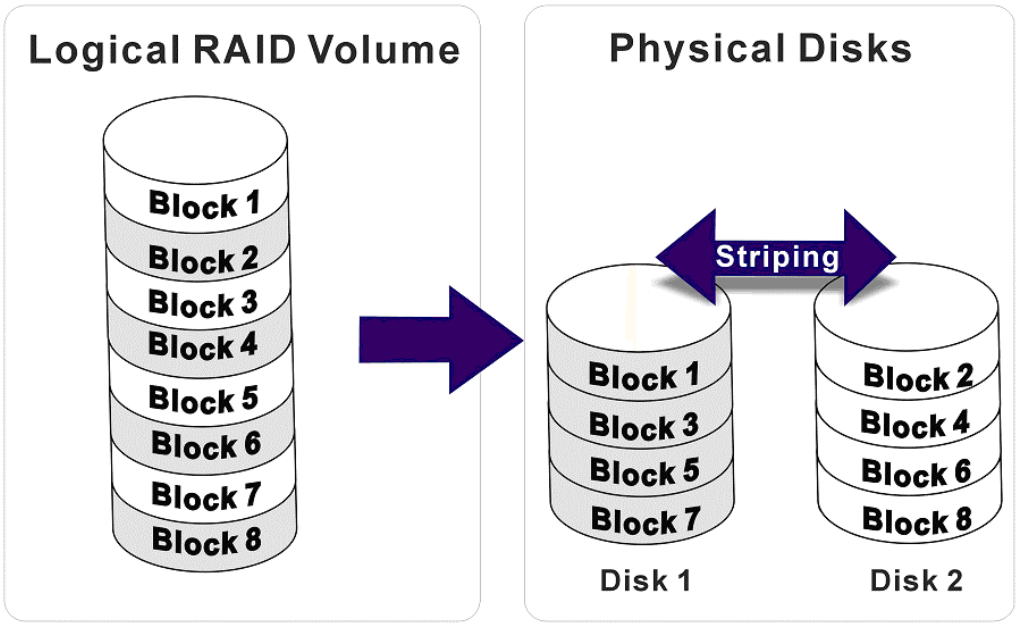


G.11 RAID Options

The JMicron JMB363 RAID controller has offers RAID 0, RAID 1 and JBOD RAID solutions.

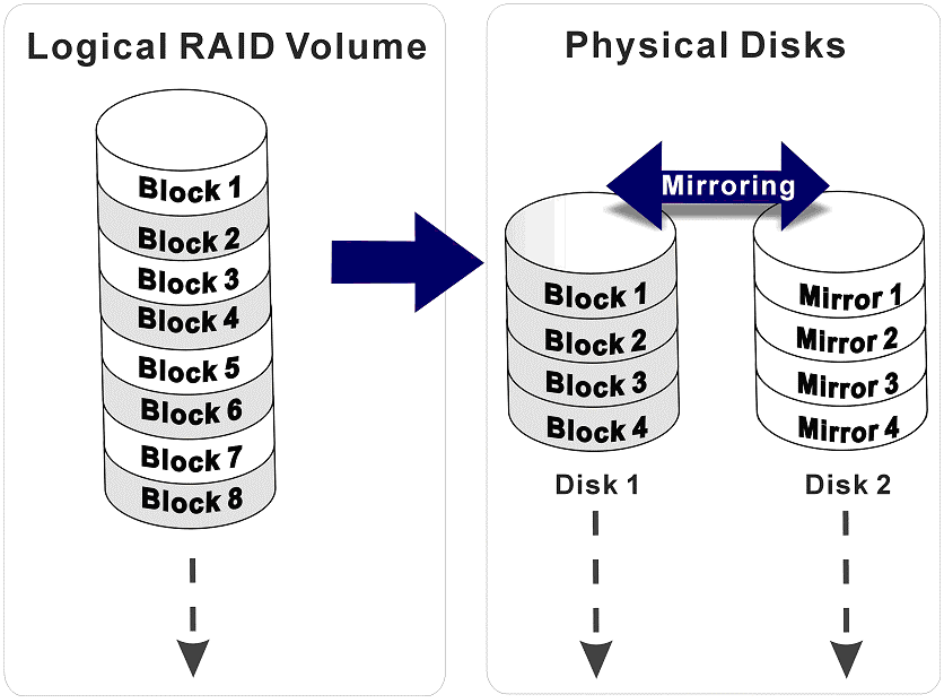
G.11.1 RAID 0 Striping – For Performance

RAID 0 stripes logical data over both the disks in the RAID array. Blocks of data are alternately written to one disk and then the other. This method results in much faster performance than a single drive. The disadvantage is that there is no redundancy so if one drive fails, all the data is lost. The maximum size of a RAID 0 array is double the size of the smallest disk.



G.11.2 RAID 1 Mirror – For Redundancy

RAID 1 repeats data over both the disks in the RAID array. One disk is an exact copy of the other. RAID 1 allows redundancy so data can be restored if one of the disks fails. There is a negligible performance difference between a RAID 1 array and a normal drive.



G.11.3 JBOD

JBOD allows a bunch of hard disks to be seen as one large disk. Unlike RAID 0, there is no performance advantage. All data is still lost if one drive fails.

THIS PAGE IS INTENTIONALLY LEFT BLANK

Index

1

12V DC input 7

9

9V~36V DC input.....7

A

AGP 78
anti-static precautions
anti-static pad 141
anti-static wristband 141
handling..... 141
self-grounding 141
ATX power select jumper.....28
location..... 29
settings 29

B

BIOS .. 42, 43, 44, 45, 46, 47, 48, 49, 50, 54, 59, 61, 63, 64, 65, 66, 68, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 83
Broadcom BCM5787M 25

C

clear CMOS jumper 30, 31
location..... 31
settings 31
CMOS 30
clear CMOS jumper 30
COM 1/2 pin 9 setting jumper.....32
location..... 33
settings 32
COM 3/4 pin 9 setting jumper.....33
location..... 34
settings 33
COM1
pin 9 setup jumper..... 32
COM2
pin 9 setup jumper..... 32
COM3
pin 9 setup jumper..... 33
COM4
pin 9 setup jumper..... 33
Compact Flash Connector 144
CompactFlash® slot 14, 27
Component Replacement 126
cooling fan.....60
cover case..... 124
CPU 145
CPU Support.....21

D

DC input 7
DDR2 ..... 2, 3, 6, 18, 23
Dimensions 7, 11, 14, 15
DIMM module.....18
Drivers
Atheros Wireless LAN..... 98
Broadcom GbE LAN 94
Intel® Graphics Media Accelerator . 90
Realtek AC'97 Audio..... 87

E

electrostatic discharge 36
expansion card installation 125
external I/O interface connectors 16

F

FDD 54
front panel 16
FSB 47
FSB select jumper 29
  location 30
  settings 30

G

Graphics Media Accelerator 24

H

HDD 2, 6, 14, 18, 53, 74, 126, 127, 128, 129, 130, 132, 133, 134, 135, 136, 147, 182

I

I/O interface connectors, external 16
ICH6-M 6, 22, 23
Installation Checklist 39
Intel® 910GMLE 6, 22, 23
Intel® 915GM 6, 22, 23, 24
Intel® Celeron® M 2, 3, 14, 21, 22
IrDA 55

J

jumper
  ATX power select 28
  clear CMOS 30
  COM 1/2 pin 9 setting 32
  COM 3/4 pin 9 setting 33
  FSB select 29
jumper settings 124

L

LEDs 16

M

motherboard 144
motherboard replacement 127, 129, 135

P

parallel port 6, 14, 54, 56, 57
peripheral interface connectors 144
power adapter 9
Power Button Mode 81
power connectors 16
power module replacement 132
power supply
  ATX power select jumper 28
PoweredUSB 6, 17, 27, 39
Power-On Procedure 39

R

RAID 3, 49, 167
  JBOD 195
  RAID 0 194
  RAID 1 194
RAID
  Accessing the JMicron RAID Utility

..... 169
Creating a RAID Array 172
Deleting a RAID Array 179
Exit Without Saving 192
Features and Benefits 169
Precautions 168
RAID Options 194
Rebuild Mirror Drive 187
Revert a Hard Drive to Non-RAID 182
Save and Exit Setup 190
Solve Mirror Conflict 185
Reset button 17, 27

S

Safety Precautions 140
system voltages 59, 60

T

temperature 59
troubleshooting 122

U

unpacking 37
USB 63, 64, 65
USB 2.0 65

V

VGA connector 17
VIA Eden™ 22

W

Wireless LAN module 18
Wireless Module 11